EVALUATION OF SECOND STAGE PARTOGRAM

IN OBSTETRIC OUTCOME

Dissertation submitted to

THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY

in partial fulfillment for the award of the Degree of

M.D. OBSTETRICS AND GYNAECOLOGY

BRANCH II

MADRAS MEDICAL COLLEGE

CHENNAI

MARCH-2009

CERTIFICATE

This is to certify that the dissertation titled "**EVALUATION OF SECOND STAGE PARTOGRAM IN OBSTETRIC OUTCOME"** is the bonafide work done by **Dr. M.KANMANI** between April 2007 to April 2008 during her M.D.,O.G., course at ISO -KGH, MMC Chennai.

DEAN

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DIRECTOR

ISO-GOVT. KGH

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I take this opportunity to express my deep sense of gratitude and humble regards to **my beloved teacher and guide**, **Dr.Rathnakumar.S** for his timely guidance, suggestion and constant inspiration enabled me to complete this dissertation.

I thank all **my professors**, **assistant professors & paramedical staff** of this institute.

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I thank **Mr.Padmanaban**, statistician, who helped me for statistical analysis.

I thank **my family & friends** for their inspiration & support given to me.

I would like to thank ***God*** for everything.

ETHICAL COMMITTEE CERTIFICATE

No:

Dated:

I, **Dr. M. Kanmani** apply for the ethical committee certificate for the project **"TO ANALYSE THE EFFICACY OF SECOND STAGE PARTOGRAM IN PREDICTING THE PROGRESS OF SECOND STAGE OF LABOUR AND OBSTETRIC OUTCOME"** under the guidance of **Dr. Prof. VASANTHA N. SUBBAIAH, Director, Institute of Social Obstetrics and Gynaecology in Govt K.G. Hospital, Chennai-600 005**

I understand the implications of doing research with human subjects and will fully comply with the regulations and keep the dignity and protect the health of subjects at all costs.

M. Kanmani

Signature of the Postgraduate Student

I have no objective to guiding this postgraduate student in the project mentioned above. I shall supervise to the extent that all the human rights are protected and research is carried on with utmost humanitarian principles

Signature of the Guide

Director of Social Obstetrics
Institute of Social Obstetrics and
Govt Kasturba Gandhi Hospital
For Women and Children
Triplicane, Chennai-600 005

Seal of Guide

I certify that this project has been presented in front of the Ethical Committee on duly formatted in this institution and that all the members of the ethical committee have given permission to conduct this research

CHAIRMAN ETHICAL COMMITTEE

Professor & Head
Dept. of Community Medicin
Stanley Medical College
Chennai - 600 001.

Date:

Seal

CONTENTS

Introduction

INTRODUCTION

Partograph is a graphic composite representation of the events of labor. It allows the critical delineation and appreciation of normal and abnormal parturitional state and pinpoints the patients who could benefit from intervention. It is appropriate for all labor.

About half a million women lose their lives because of complications of pregnancy and labor.99% of these occurs in developing countries. In the developing world, 407 women die for every 1,00,000 live births . In Tamilnadu, MMR is 90 per 1,00,000 live births.

Recognizing the unexpectedly high maternal mortality and morbidity (which is highly preventable) and the social consequences of the mother's death to her family and children, the **"SAFE MOTHERHOOD INITIATIVE"** conference held at Nairobi in February 1987.

The conference concluded with a **"CALL TO ACTION"**: to reduce MMR by 50% by the year 2000. Among the action called for, the most important one is,

- Monitoring the labor with Partograph.

- To identify high risk cases and early referral to higher centers

WHO multicenter trial (1994) demonstrated the use of partograph, reduced the LSCS rate, low APGAR scores, need for augmentation and perinatal mortality. It was useful in reducing prolonged labor incidence from 6.4% to 3.4% and hence it encourages the widespread use of Partograph in institution and PHC's.

Current modified WHO partograph starts with the entry of active stage of labor and stops once full dilatation is reached. Further information is not graphically represented. Hence there occurs the need for a graphic display of progress in second stage of labor, especially when the second stage is prolonged.

Cervical dilatation is no longer useful as an indicator of the progress of labor in the second stage and additional variables are necessary to assess the labor. Descent which has been shown to be the important factor in assessing the progress of the first stage may be proposed as a useful tool in the assessment of the second stage.

Position is the second variable, as the fetal malposition is the factor which implies the abnormalities of rotation, may be used in the observation of progress in the second stage.

This study is undertaken to assess the concept of a second stage partogram as a routine in all labor and to further explore its potential as a useful clinical tool.

History

HISTORY

Study of labor pattern using cervical dilatation as an index began as far back as 1861 when **Ebermann** first described the changes in the cervical os which could be palpated with the finger.

A scientific approach to the study of labor was began by **Friedman** in 1954. In his study he determined that 10% of all labor under 24 hours that were clinically designated as normal were actually abnormal when analyzed graphically. His objective was to improve the fetal salvage and optimize ultimate outcome potential for surviving infants.

Friedman described the three groups of dysfunctional labor according to the functional division of labor, in which they appeared. He described three functional units-preparatory division (latent and acceleration phases of dilatation curve), dilatation phase (the phase of maximum slope of dilatation) and a pelvic division (deceleration of the second stage combined). He described more than 20 hours of latent phase in nullipara and more than 14 hours in multipara as prolonged. He also described,

i) protracted active phase dilatation as slope of dilatation in active phase <1.2 cm/hr in nullipara and <1.5cm/hr in multipara.

ii) protracted descent as rate of descent <1cm/hrin nullipara and 2cm/ hr in multipara

iii) Secondary arrest of dilatation, arrest of descent and prolonged deceleration phase characterized disorders of pelvic division.

He found that protraction and arrest pattern was followed by increased midforceps procedures and contributed to increase in perinatal mortality and morbidity and maternal injuries.

Harold Schulman and William Ledger (1964) described the practical application of graphic portrayal of labor.

In 1970, **Hendricks and Coworkers** challenged Friedman's conclusions about the course of labor. Their principal differences included,

i) Absence of a latent phase.

ii) No deceleration phase.

iii) Brevity of labor

iv) Dilatation at similar rates for primi and multigravida after 4 cm has been has been reached.

They disputed the concept of a latent phase because they observed that cervical dilatation and effacement occurred slowly during the four weeks preceding labor.

In 1972, **Philpott** devised the first composite labor picture by combining details of labor progress and Hendricks concept of the starting time and together with information about fetal and maternal condition graphically.

Studd et al (1972) constructed a nomogram of cervical dilatation. A stencil of the nomogram thus produced was superimposed at the appropriate part of cervical dilatation on the partograph. By comparison of the two curves it was possible to recognize dysfunctional labor very early.

Popov and Tancher in 1993 studied the role of age on the duration and disorders in the progress of labor in primigravida.They concluded that after 25 years of age, the total duration of labor increases and the incidence of protracted active phase increases. There was no effect on latent phase or arrest disorders.

Stronge in 1994 reported that 80% of nulliparous women completed the labor within 12-14 hours of its onset and they considered it to be prolonged if duration exceeded 18 hours.

Kamala Jayaram in 1993 reported that obstructed labor contributes to about 10% of all maternal deaths in India. She concluded that early referral of high risk cases and partogarphic monitoring of labor are useful preventive measures.

After full dilatation, our present modified WHO Partograph stops and further information is not graphically represented, thus losing the advantages of early assessment of abnormalities of second stage.

Review of Literature

REVIEW OF LITERATURE

A GRAPHIC REPRESENTATION OF LABOR:

"The Friedman curve"

Most of the present understanding of labor is based on the work of **Emmanuel and Friedman** (1954). He constructed a graphic representation of labor by plotting cervical dilatation and descent of the presenting part against time. Cervical dilatation follows a sigmoid shaped curve. The first stage is divided into a relatively flat latent phase and the active phase.

Active phase is divided into an acceleration phase, phase of maximum slope, and deceleration phase. Descent of the presenting part follows a hyperbolic shaped curve with little initial change followed by rapid progress at type beginning of the deceleration phase.

Labor course was divided functionally on the basis of expected evolution of the dilatation and descent curves into

i) Preparatory division including latent and acceleration phases

ii) Dilatational division occupying the phase of maximum slope of dilatation.

iii) Pelvic division encompassing both deceleration phase and second stage while concurrent with the phase of maximum slope of descent.

LABOR ABNORMALITIES:

i) Latent phase abnormality: prolonged latent phase.

ii) Active phase abnormality: divided into protraction and descent disorders

i) Prolonged latent phase:

Friedman and Sachtlben (1963) defined a prolonged latent phase to be greater than 20 hrs in nullipara and >14 hrs in a parous women. According to Friedman (1972), prolonged latent phase did not adversely influence fetal or maternal morbidity. But Chelmor and coworkers (1993) disputed the long held belief that prolongation of latent phase is benign.

Friedman claimed that, with strong sedatives, 85% of these women will begin active labor, 10% will cease contracting and 5% will experience recurrence of an abnormal latent phase and require oxytocin stimulation.

ii) Active phase abnormalities:

Criteria for diagnosis of protraction and arrest disorders.(ACOG 1995a)

a) Protraction disorders:

Labor pattern	**Nullipara**	**Multipara**
Dilatation	<1.2cm/hr	1.5cm/hr
Descent	<1cm/hr	<2cm/hr

b) Arrest disorders:

Labor pattern	**Nullipara**	**Multipara**
Dilatation	>2hrs	>2hrs
Descent	>1hr	>1hr

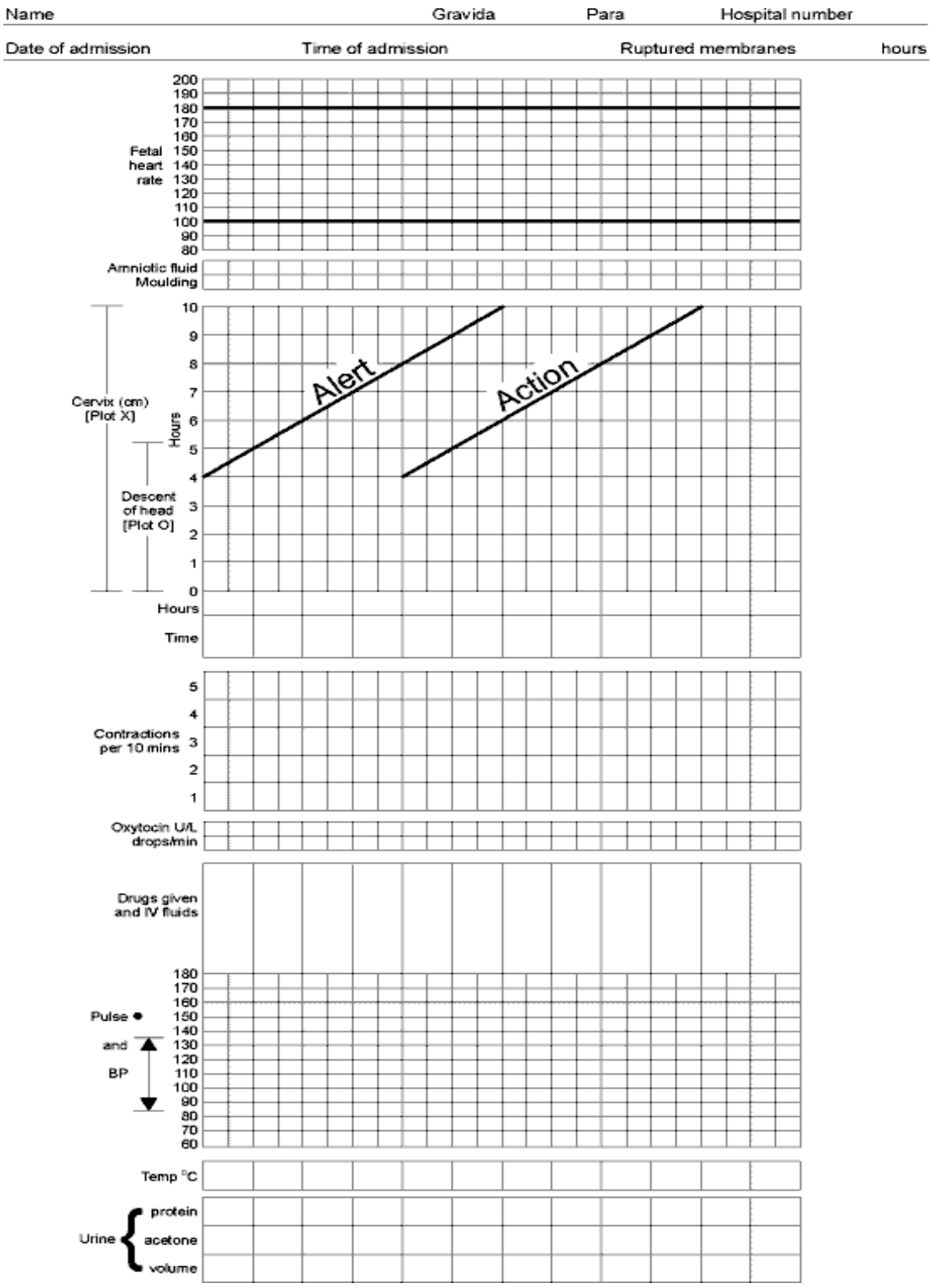
Friedman found that about 30% of women with protraction disorders and 45% of women with arrest disorders had CPD.

CAUSES OF LABOR ABNORMALITIES:

I) Power:

- Hypotonic dysfunction
- Hypertonic dysfunction

Modified WHO Partograph



Poor maternal pushing effort.

II) Passenger:

- Size
- Presentation
- Position
- Attitude
- Congenital abnormalities

III) Pelvis:

- Absolute CPD
- Relative CPD

TO PLOT MODIFIED WHO PARTOGRAPH:

1) Fetal heart rate:

By Pinard's fetoscope atleast every half an hour in the first stage and is checked immediately after every uterine contraction.

2) Liquor status:

Membranes intact : I

Clear liquor : C

Meconium stained : M

Blood stained : B

3) Moulding:

Stewart score: It is to be assessed atleast at two locations on the head i.e.,Parietal/parietal, parietal/occipital, parietal/frontal.

Grade 0: Bones normally separate.

+: closure of suture line.

++: Reducible overlap

+++: Irreducible overlap of cranial bones

4) Level of head:

The fetal head level should be assessed and recorded by abdominal palpation by **Crichton's Method** (1974) modified by Lastrey. It is described as the number of fifth of head palpable per abdomen.

Notelowitz (1972) improved the clinical accuracy by estimating the number of finger breadths palpable above the symphysis pubis this being equal to the number of fifths. It is marked with symbol ‘o’.

5) Cervicograph:

Alert line was drawn from 4cm upwards at a slope of 1cm/hr to full cervical dilatation. Action line is drawn 4hrs to the right of alert line parallel to it. It is suggested that if cervical dilatation crosses this line there should be a critical assessment of the cause of delay and decision is to be made about appropriate management.

Plotting of cervical dilatation:

On admission, a vaginal examination is done which includes pelvic assessment and the findings recorded.

The rate of cervical dilatation is charted from zero time with ‘x’ on the partograph. Vaginal examination was repeated every 4hrs and more frequently in advanced labor.

6) Uterine contraction:

It is evaluated in a non-qualitative way by palpation.The number and duration of contraction to be noted.

7) Oxytocin:

Units of oxytocin in one lire of crystalloid and the number of drops/min are noted. The number of drops/min is titrated according to the uterine contractions to achieve effective contraction i.e., 3 contractions in 10 minutes lasting for more than 40 seconds.

8) Maternal wellbeing:

It is assessed by:

- recording of maternal pulse rate, blood pressure, and temperature.
- maintenance of fluid chart.
- examination of urine for the presence of ketone bodies and other routine tests.

After full dilatation, the progress of labor in second stage is monitored by position and station of head.

Kadar et al., in 1986, estimates the probability of spontaneous delivery conditional on the time spent on the second stage. They showed

that if delivery had not occurred for 3 hours, the probability that it would occur in the next 3 hours is fewer than 30%

Paterson et al in 1992, conducted an analysis based on the characteristics of the second stage of labor and showed that in multipara not using epidural analgesia, the likelihood of spontaneous vaginal delivery after 1 hour in the second stage was low. But in those multipara using epidural analgesia and in nullipara ther is no clear cut-off point for expectation of spontaneous delivery. Hence the intervention should be based on the rate of progress rather than the elapsed time since full dilatation.

Davidson et al in 1976, links the relation between case of forceps delivery and speed of cervical dilatation. The duration of 7-10 cm dilatation of cervix interval was measured. The greater this interval increased beyond two hours, the greater was the proportion of difficult forceps deliveries.

A study by **Alexander et al** in 2007, compares maternal and infant outcomes from primary caesarean delivery during the second compared with the first stage of labor. They concluded that the caesarean delivery in the second stage of labor is associated with slightly increased maternal but not neonatal composite morbidity.

Effect of fetal position on second stage duration and labor outcome, studied by **Sencal and Xiong et al** in 2005, concluded that fetal malposition at full dilatation was associated with a significantly increased risk of instrumental vaginal delivery, caesarean delivery, oxytocin administration before full cervical dilatation, episiotomy, severe perineal laceration and maternal blood loss of more than 500ml and prolonged second stage of labor.

Cheng et al in 2004, studied whether prolonged second stage of labor in nulliparous women affect maternal and neonatal outcomes and concluded that the length of second stage of labor is not associated with poor neonatal outcome but with increased maternal morbidity and operative delivery rates.

The obstetric outcomes associated with persistent occipito posterior position was analysed by **Ponkey et al** in2003 and concluded that it is associated with a higher arte of complication during labor and delivery. Newborns had lower 1-minute APGAR scores but showed no differences in 5-minute APGAR scores, gestational age and birth weight.

Risk factor for arrest of descent during the second stage of labor analysed by **Feinstein et al** in 2002, showed the major risk factors were

multiparity, fetal macrosomia, epidural analgesia, hydramnios, hypertensive disorders and GDM.

Moon et al in 1990 showed that infants born after a prolonged second stage did not have an increased incidence of umbilical artery pH <7.2 or of 5minute APGAR score <7nor increased incidence of intensive care nursery admission. A prolonged second stage of labor does not appear to impose an increased hazard on the fetus but does require close fetal monitoring and increases the possibility of operative delivery.

Sizer et al in 1996 described a second stage partogram based on position of the fetal head and used this system for studying progress in the second stage of labor and predicting mode of delivery and obstetric outcome. They defined a nomogram for nulliparas and multiparas and was used to define normal and abnormal progress in the second stage, associated factors in the first stage of labor, and mode of delivery.

Results of this study was ; increasing total score at the start of second stage of labor is associated with increasing chance of spontaneous vaginal delivery [odds ratio (OR) 1.68 for nulliparas, 1.59 for multiparas], decreasing chance of instrumental vaginal delivery [OR 0.67 for nulliparas,0.64 for multiparas], and emergency caesarean delivery [OR 0.39 for multiparas].

An abnormal nomogram is associated with high rate of induction of labor, augmentation, dystocia and increased incidence of operative delivery.

The second stage partogram offers an objective basis for management of the second stage of labor.

Aim of the Study

AIM OF STUDY

1. To analyze the efficacy of second stage partogram in predicting the progress of second stage of labor and obstetric outcome.

2. To improve the outcome of mother and infant in terms of morbidity and mortality.

Materials and Methods

MATERIALS AND METHODS

PLACE OF STUDY:

At Institute of Social Obstetrics-Govt.Kasturba Gandhi Hospital labor ward

STUDY POPULATION:

Total number of cases: 1000

Primigravida : 580

Multigravida : 420

PERIOD OF STUDY:

From April 2007 to April 2008.

ETHICAL CLEARANCE:

The study was approved by the hospital ethical committee.

INCLUSION CRITERIA:

- All women who reached full dilatation.
- Singleton pregnancy.

- Term gestation (>37 weeks)
- Cephalic presentation.
- No contraindication

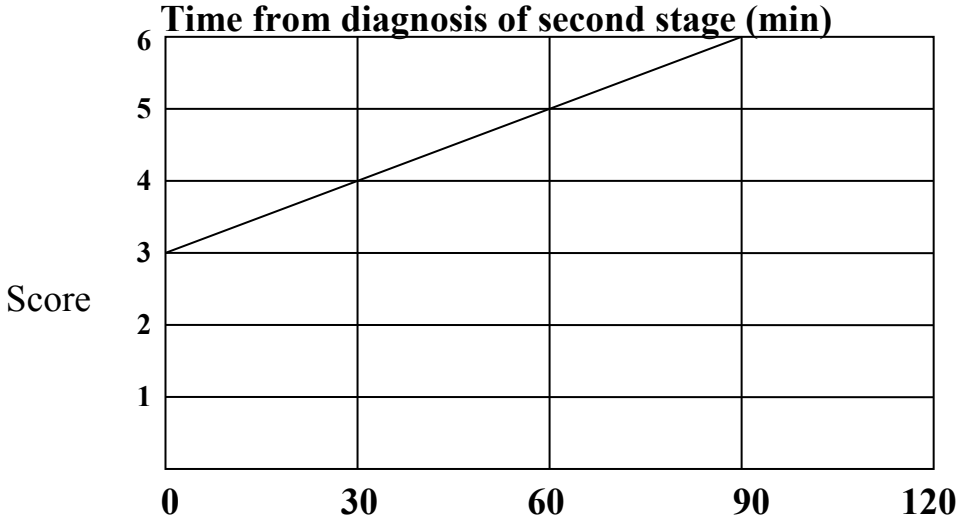
EXCLUSION CRITERIA:

- Those who did not attain full dilatation.
- Breech presentation
- Multiple pregnancies
- Preterm labor
- Women in whom vaginal delivery is contraindicated.

A total of 1000 women fulfilled these criteria and were willing to be part of the study. Participation rates were 580 for nulliparous and 420 for multiparas.

Once labor was established, vaginal examination was performed as and when required throughout the first stage and were recorded on a standard partogram. The onset of second stage of labor was diagnosed by vaginal examination or by the clinical finding of a visible vertex.

SECOND STAGE PARTOGRAM (NULLIPARAS)



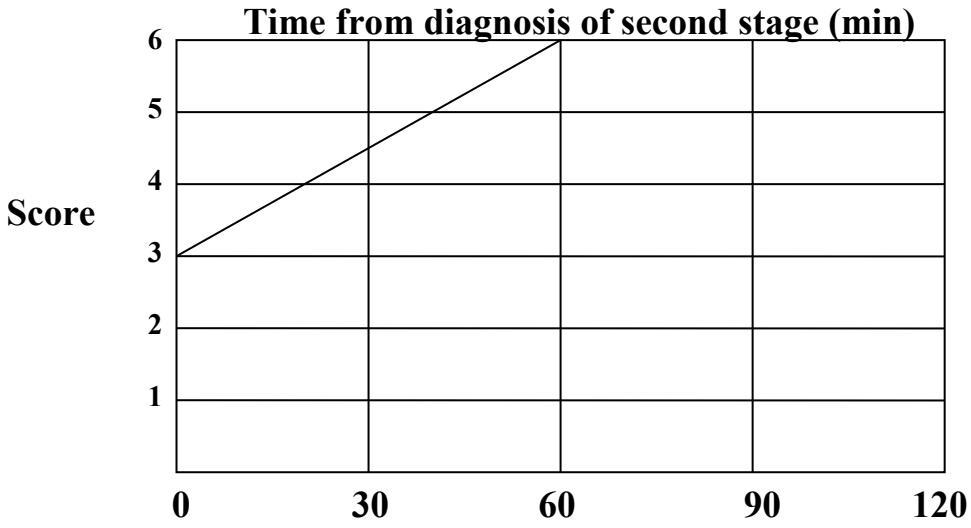
The station and position of the head were recorded. Further vaginal assessment of station and position was performed after 1 hr and then, if possible and if the patient agreed to it at 30 minutes intervals until delivery. The time of delivery was recorded and the length of the second stage was calculated.

The methods of delivery and indications for any intervention were recorded. No women in the study underwent elective low forceps delivery for medical reasons such as cardiac disease. No particular time limit was set for the second stage, but it seldom lasted more than 3 hours. Birth weight was noted.

Information on station and position was scored as:

POSITION	SCORE
Occipito anterior (most favorable)	2
Occipito transverse (less favorable)	1
Occipito posterior (least favorable)	0

SECOND STAGE PARTOGRAM (MULTIPARAS)



Higher than 1cm below the ischialspines	0
At spines +1	1
Any station lower than this	2

Maximum score obtained from position and station is 4.

- If the vertex was visible and anal dilatation was present, indicating exit from the bony pelvis and imminent delivery (equivalent to spine +4)-score 5

- Once delivery has occurred,-score 6

A score was allocated after delivery so that the second stage partogram could be completed graphically. The sum of descent and position scores was plotted against time elapsed in the second stage to give an indication of progress in each labor.

The relative importance of position, station and total score was assessed for its ability to predict mode of delivery by using logistic regression.

A nomogram was constructed for progress in the second stage by taking the median score at each time point of vaginal examination. Only

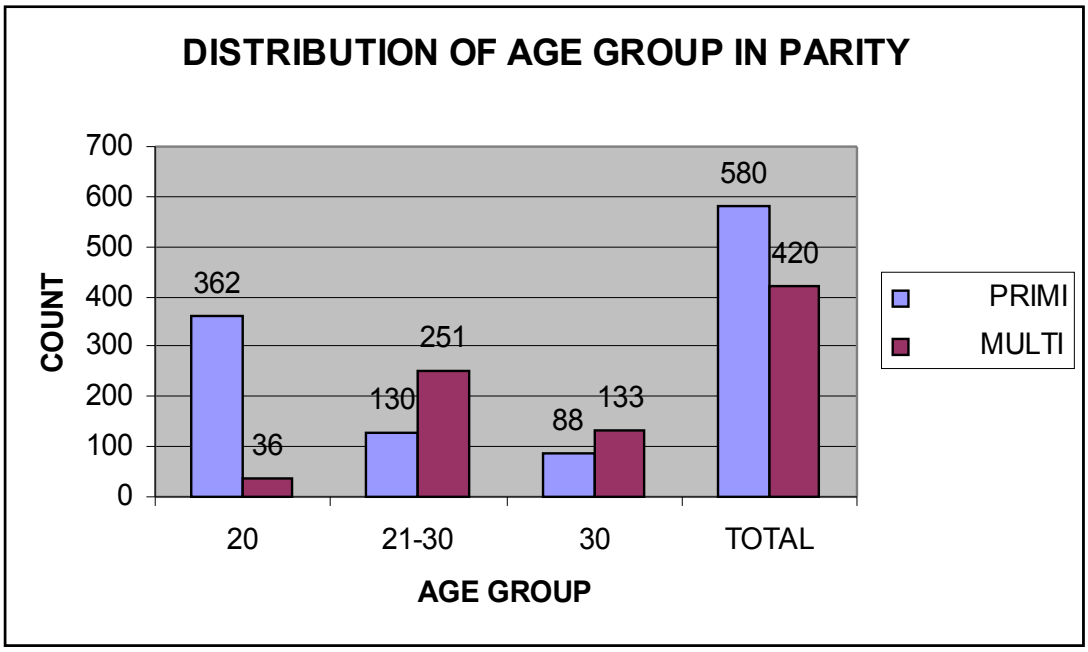
scores less than 5 at the time of diagnosis of the second stage were used to construct the nomogram.

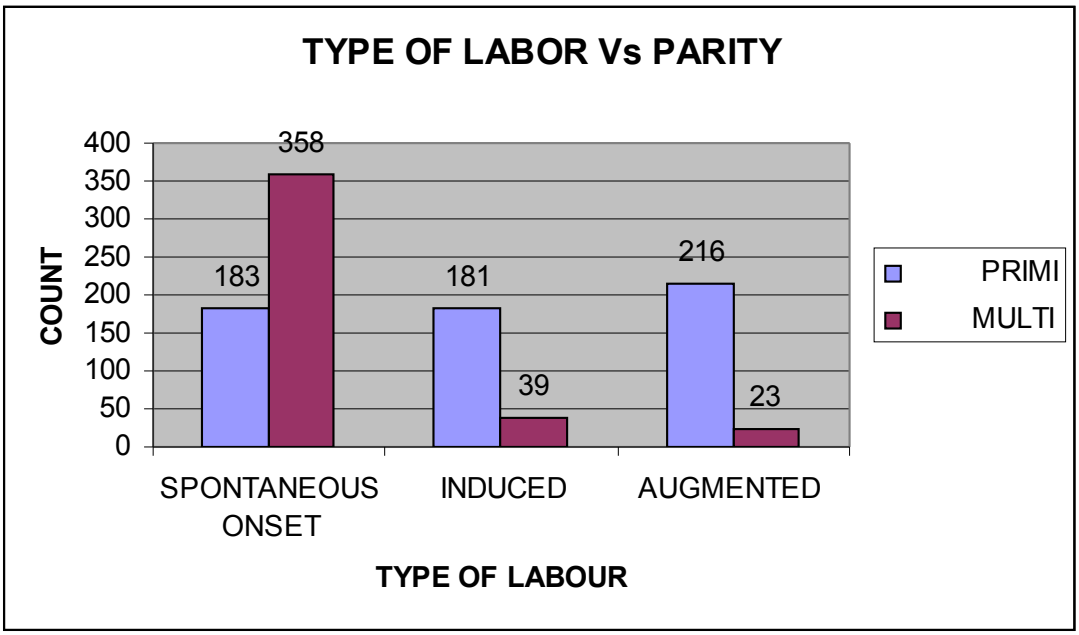
A nomogram was constructed for both nulliparous and multiparous women. Progress in the second stage was then categorized as normal or abnormal on the basis of nomogram. Second stage labors that progressed on or to the left of the nomogram line were classified as abnormal.

The initial score at the time of diagnosis of the second stage may be used as a predictor of the duration of second stage of labor and as a predictor of the mode of delivery and may be useful n the early identification of women at increased risk of difficult delivery. Study also involved the outcome of the neonate by means of Apgar score at 5 minutes.

The results were analysed by using the **Student t-test** and **Chi-square test.**

Results


DISTRIBUTION OF AGE GROUP IN PARITY
700
600
500
400
300
200
100
0
COUNT
362
36
130
251
88
133
580
420
20
21-30
30
TOTAL
AGE GROUP
PRIMI
MULTI


TYPE OF LABOR Vs PARITY
400
350
300
250
200
150
100
50
0
COUNT
183
358
181
39
216
23
SPONTANEOUS ONSET
INDUCED
AUGMENTED
TYPE OF LABOUR
PRIMI
MULTI

RESULTS

Table - 1

DISTRIBUTION OF AGE GROUP IN PARITY:

AGE GROUP (in yrs)	PARITY	
	PRIMI	MULTI
≥ 20	362 (62.4%)	36 (8.6%)
21-30	130 (22.4%)	251 (59.8%)
>30	88 (15.2%)	133 (31.7%)
TOTAL	**580**	**420**

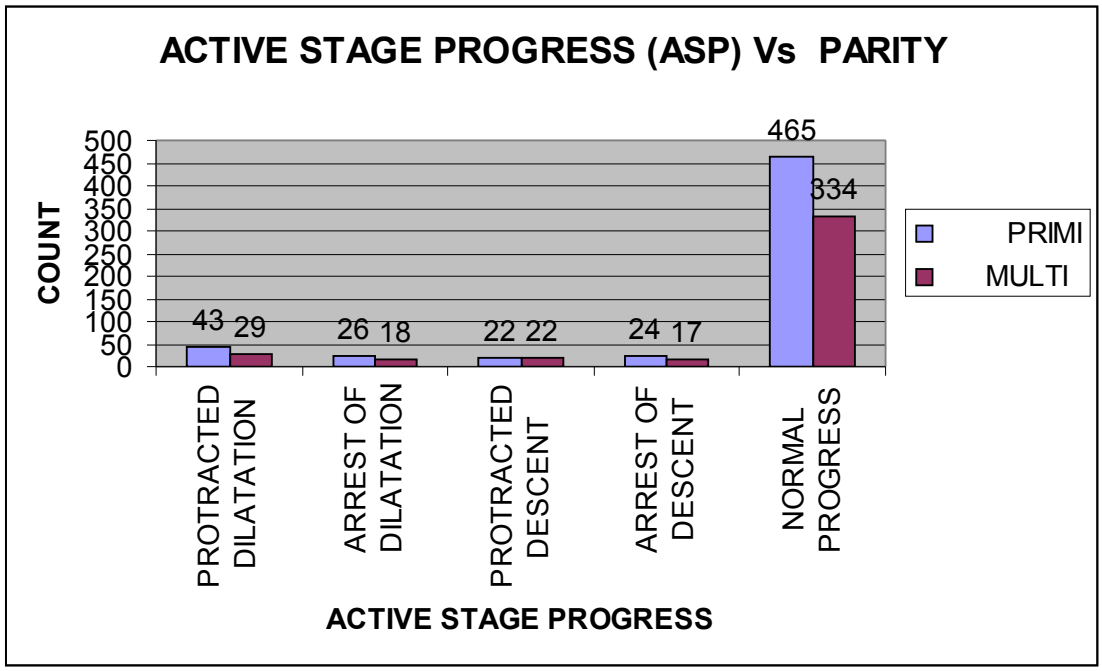
Using Chi-square test, P=0.000

Table - 2

TYPE OF LABOR Vs PARITY

TYPE OF LABOUR	PARITY	
	PRIMI	MULTI
SPONTANEOUS ONSET	183(31.6%)	358(85.2%)
INDUCED	181(31.2%)	39(9.3%)
AUGMENTED	216(37.2%)	23(5.5%)

Using chi –square test, p=0.000



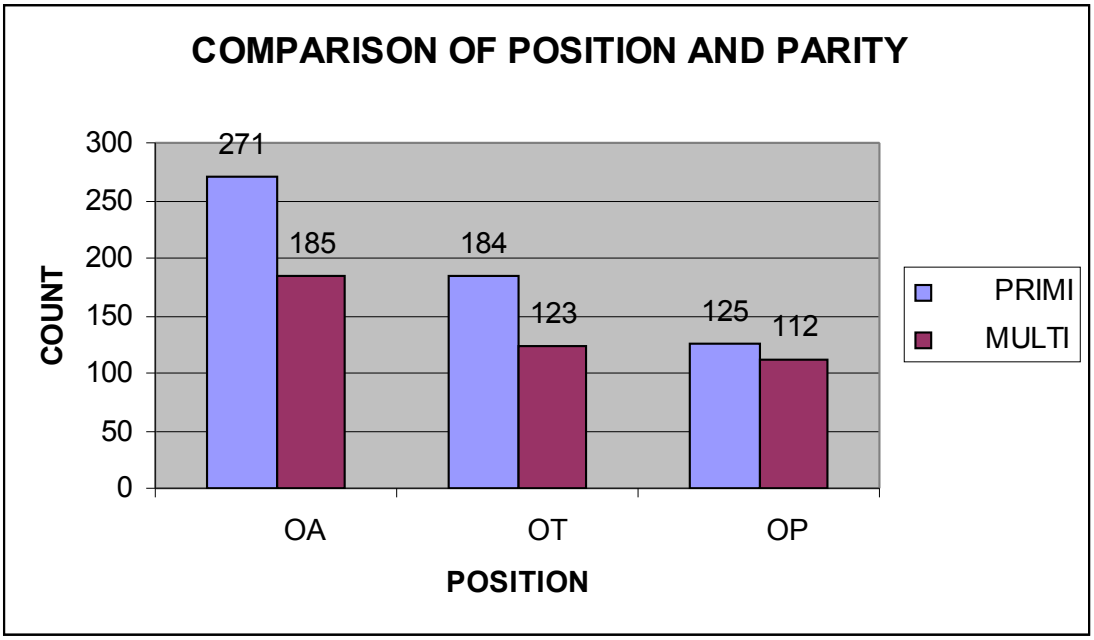


Table - 3

ACTIVE STAGE PROGRESS(ASP) Vs PARITY

ACTIVE STAGE PROGRESS	PARITY	
	PRIMI	MULTI
PROTRACTED DILATATION	43(7.4%)	29(6.9%)
ARREST OF DILATATION	26(4.5%)	18(4.3%)
PROTRACTED DESCENT	22(3.8%)	22(5.2%)
ARREST OF DESCENT	24(4.1%)	17(4.0%)
NORMAL PROGRESS	465(80.2%)	334(79.5%)

Using chi-square test, p=0.864

No significance noted between ASP & parity

Table - 4

COMPARISON OF POSITION AND PARITY:

POSITION	PARITY	
	PRIMI	MULTI
OA	271(46.7%)	185(44%)
OT	184(31.7%)	123(29.3%)
OP	125(21.6%)	112(26.7%)

OA- Occipito anterior

OT-Occipito transverse

OP- Occipito posterior

Using chi-square test, p=0.170

No significant correlation foun

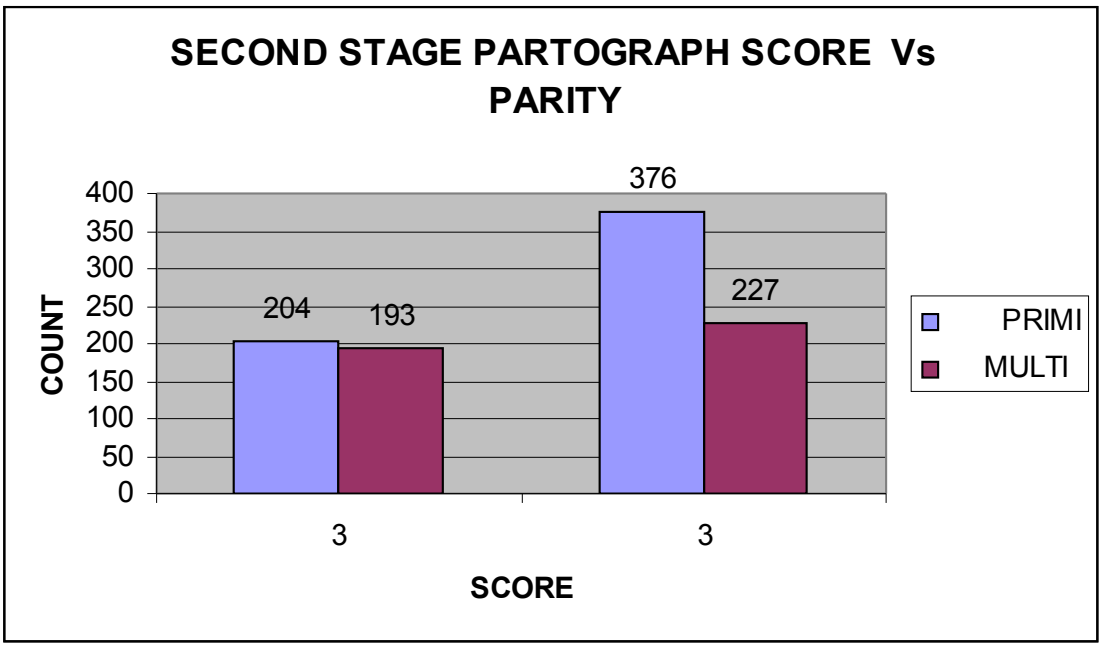

SECOND STAGE PARTOGRAPH SCORE Vs PARITY
COUNT
400
350
300
250
200
150
100
50
0
204
193
376
227
3
3
SCORE
PRIMI
MULTI

Table - 5

SECOND STAGE PARTOGRAPH SCORE Vs PARITY

SCORE	PARITY	
	PRIMI	MULTI
< 3	204(35.2%)	193(46%)
≥ 3	376(64.8%)	227(54%)

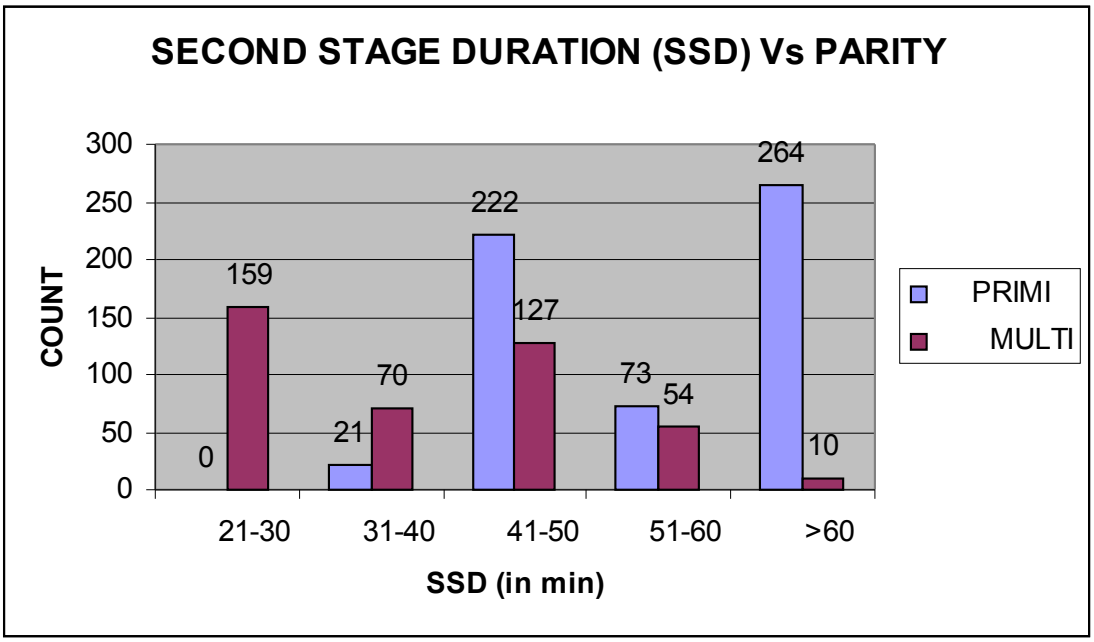
Using chi-square test,p=0.001

Table - 6

SECOND STAGE PROGRESS (SSP) Vs PARITY

SECOND STAGE PROGRESS	PARITY	
	PRIMI	MULTI
NORMAL	399(68.8%)	355(79.8%)
PROTRACTED DESCENT	97(16.7%)	47(11.2%)
ARREST OF DESCENT	84(14.5%)	38(9.0%)

Using chi-square test, p=0.001



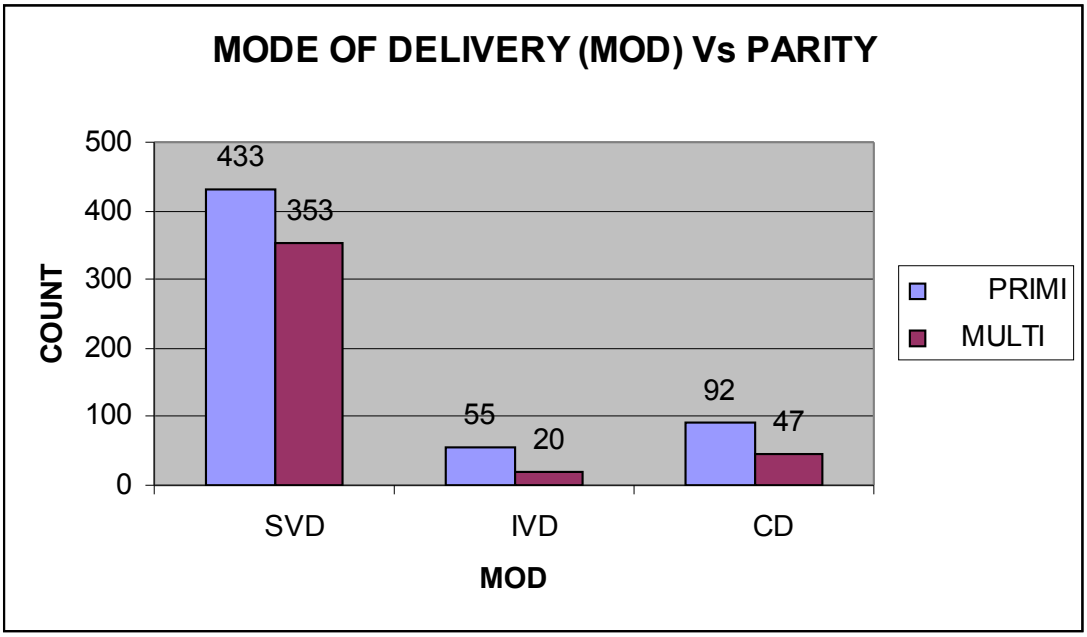


Table - 7

SECOND STAGE DURATION (SSD) Vs PARITY

SSD(in min)	PARITY	
	PRIMI	MULTI
21-30	NIL	159(37.9%)
31-40	21(3.6%)	70(16.7%)
41-50	222(38.2%)	127(30.2%)
51-60	73(12.6%)	54(12.9%)
>60	264(45.6%)	10(2.4%)

Using student 't' test, significance 0.000

Table - 8

MODE OF DELIVERY (MOD) Vs PARITY

MOD	PARITY	
	PRIMI	MULTI
SVD	433(74.7%)	353(84%)
IVD	55(9.5%)	20(4.8%)
CD	92(15.9%)	47(11.2%)

Using chi-square test,p=0.001

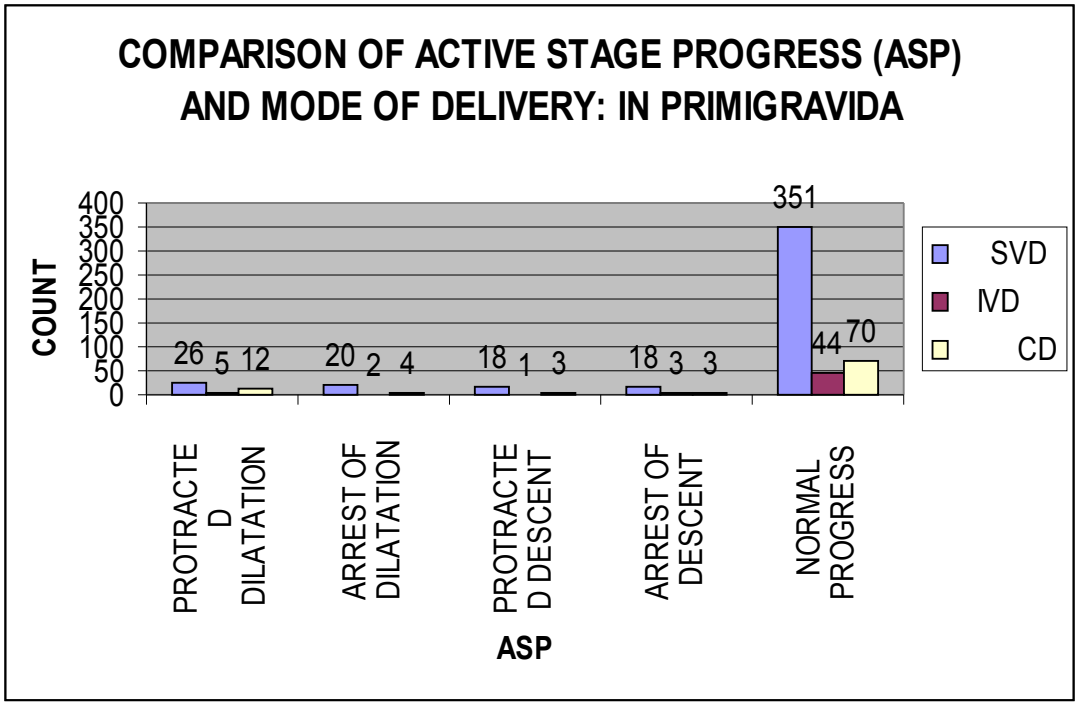

COMPARISON OF ACTIVE STAGE PROGRESS (ASP) AND MODE OF DELIVERY: IN PRIMIGRAVIDA
COUNT
400
350
300
250
200
150
100
50
0
26
5
12
20
2
4
18
1
3
18
3
3
351
44
70
SVD
IVD
CD
PROTRACTED DILATATION
ARREST OF DILATATION
PROTRACTED DESCENT
ARREST OF DESCENT
NORMAL PROGRESS
ASP

Table - 9

COMPARISON OF ACTIVE STAGE PROGRESS (ASP) AND MODE OF DELIVERY:

IN PRIMIGRAVIDA

ASP	MODE OF DELIVERY		
	SVD	IVD	CD
PROTRACTED DILATATION	26(6%)	5(9.1%)	12(13%)
ARREST OF DILATATION	20(4.6%)	2(3.6%)	4(4.3%)
PROTRACTED DESCENT	18(4.2%)	1(1.8%)	3(3.3%)
ARREST OF DESCENT	18(4.2%)	3(5.5%)	3(3.3%)
NORMAL PROGRESS	351(81.1%)	44(80%)	70(76.1%)

Using chi-square test p=0.555

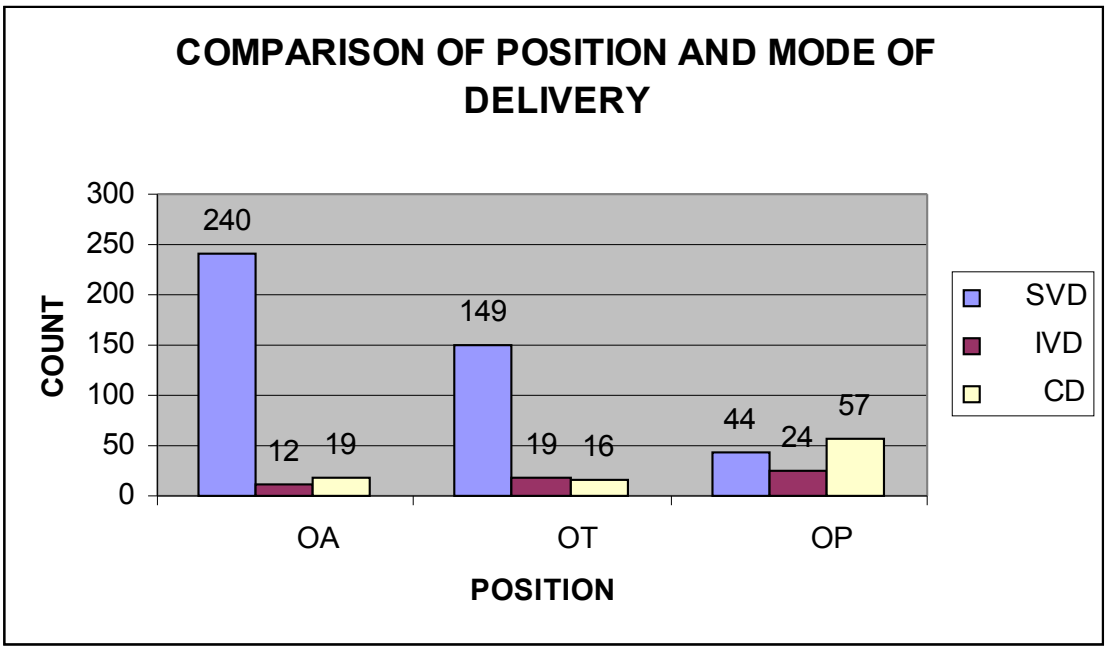
Table - 10

IN MULTIPARA,

ASP	MODE OF DELIVERY		
	SVD	IVD	CD
PROTRACTED DILATATION	26(7.4%)	2(10%)	1(2.1%)
ARREST OF DILATATION	18(5.1%)	0	0
PROTRACTED DESCENT	19(5.4%)	2(10%)	1(2.1%)
ARREST OF DESCENT	15(4.2%)	1(5%)	1(2.1%)
NORMAL PROGRESS	275(77.9%)	15(75%)	44(93.6%)

Using chi-square test,p=0.34

IN PRIMIGRAVIDA


COMPARISON OF POSITION AND MODE OF DELIVERY
300
250
200
150
100
50
0
COUNT
240
12
19
149
19
16
44
24
57
OA
OT
OP
POSITION
SVD
IVD
CD

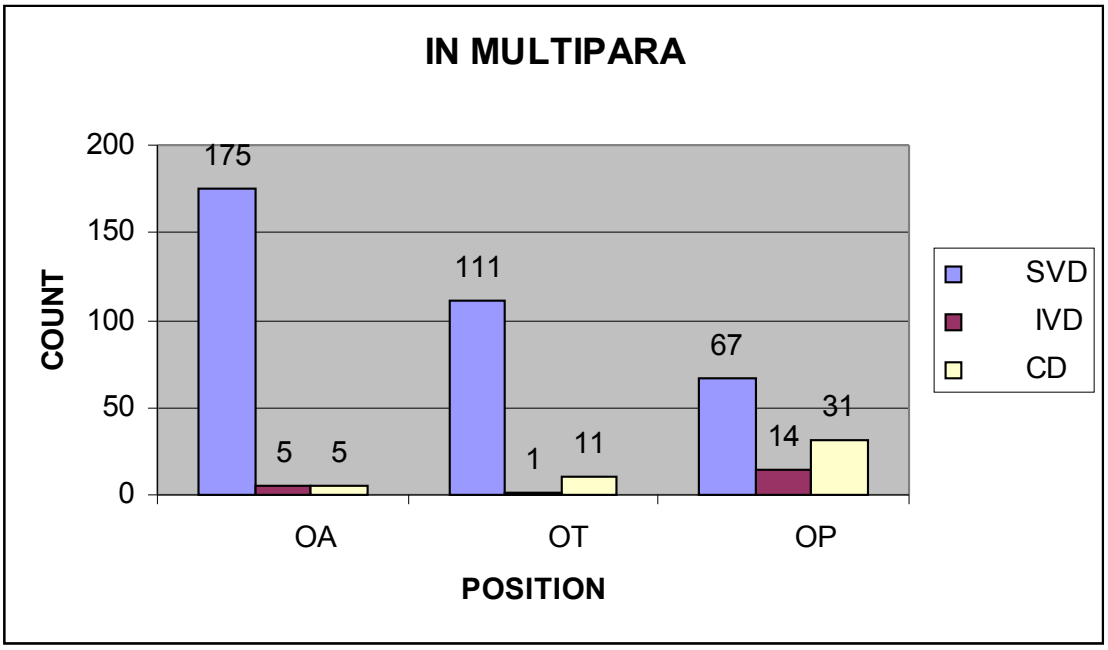

IN MULTIPARA
200
150
100
50
0
COUNT
175
5
5
111
1
11
67
14
31
OA
OT
OP
POSITION
SVD
IVD
CD

Table - 11

COMPARISON OF POSITION AND MODE OF DELIVERY:

IN PRIMIGRAVIDA

POSITION	MODE OF DELIVERY		
	SVD	IVD	CD
OA	240(55.4%)	12(21.8%)	19(20.7%)
OT	149(34.4%)	19(34.5%)	16(17.4%)
OP	44(10.2%)	24(43.6%)	57(62.0%)

Using chi-square test,p=0.000

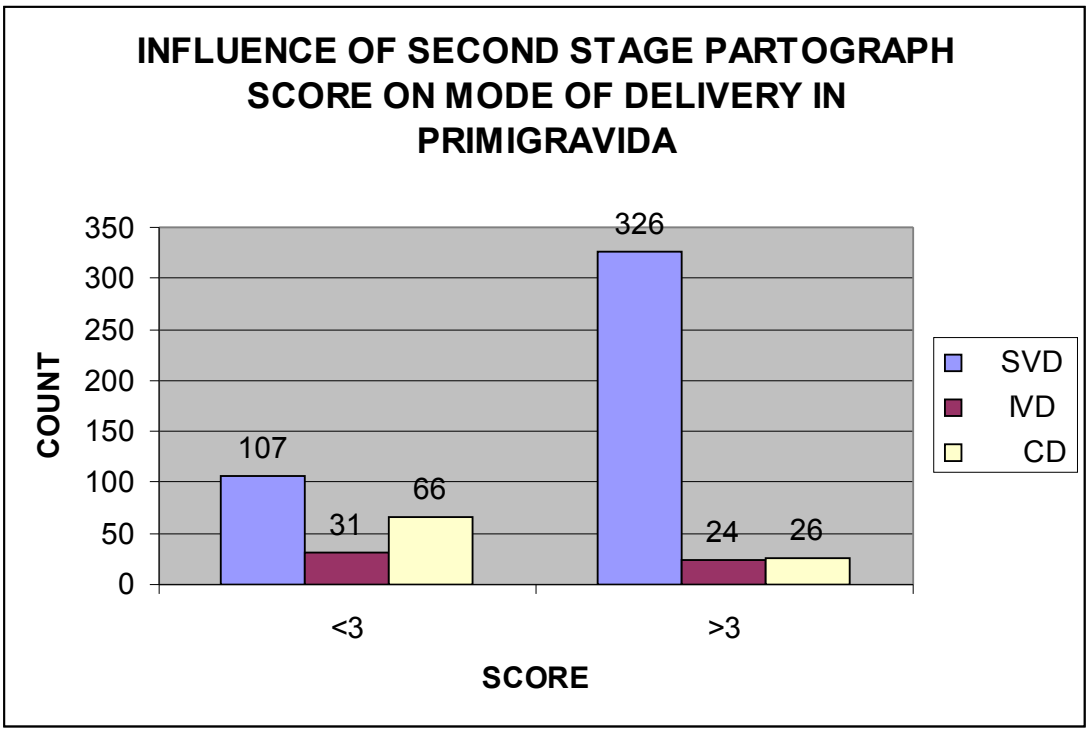
Table - 12

IN MULTIPARA,

POSITION	MODE OF DELIVERY		
	SVD	IVD	CD
OA	175(49.6%)	5(25.0%)	5(10.6%)
OT	111(31.4%)	1(5.0%)	11(23.4%)
OP	67(19%)	14(70%)	31(66%)

Using chi-square test,p=0.000

Irrespective of parity, favorable position(OA) results in increased number of vaginal deliveries.


INFLUENCE OF SECOND STAGE PARTOGRAPH SCORE ON MODE OF DELIVERY IN PRIMIGRAVIDA
COUNT
350
300
250
200
150
100
50
0
107
31
66
326
24
26
<3
>3
SCORE
SVD
IVD
CD

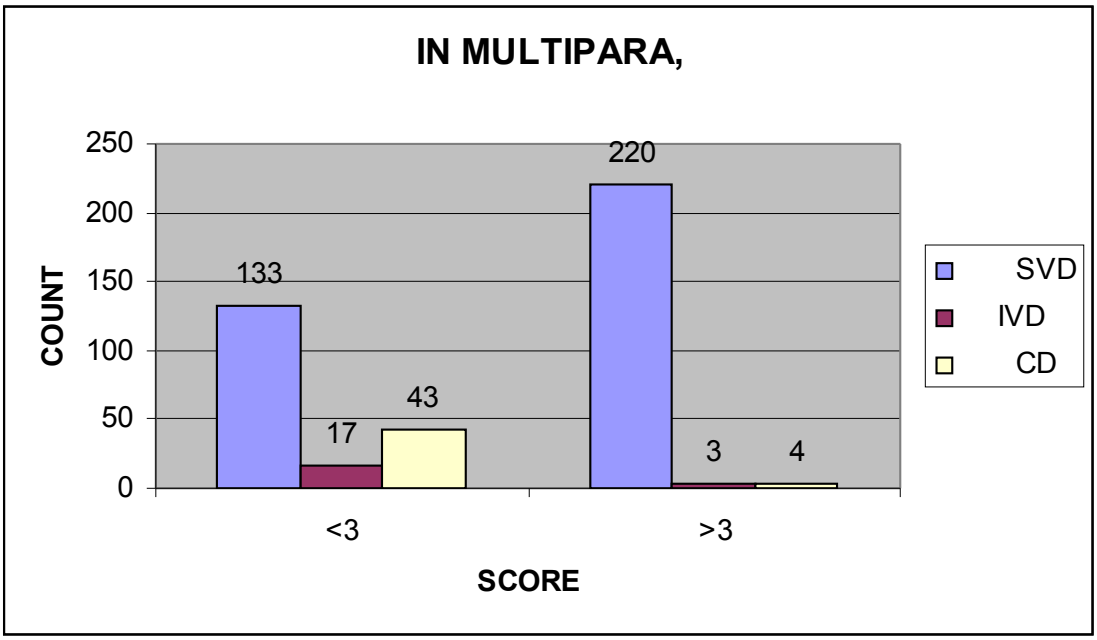

IN MULTIPARA,
COUNT
250
200
150
100
50
0
133
17
43
220
3
4
<3
>3
SCORE
SVD
IVD
CD

Table - 13

INFLUENCE OF SECOND STAGE PARTOGRAPH SCORE ON MODE OF DELIVERY

IN PRIMIGRAVIDA,

SCORE	MODE OF DELIVERY		
	SVD	IVD	CD
< 3	107(24.7%)	31(56.4%)	66(71.7%)
≥ 3	326(43.6%)	24(43.6%)	26(28.3%)

Using chi-square test,p=0.000

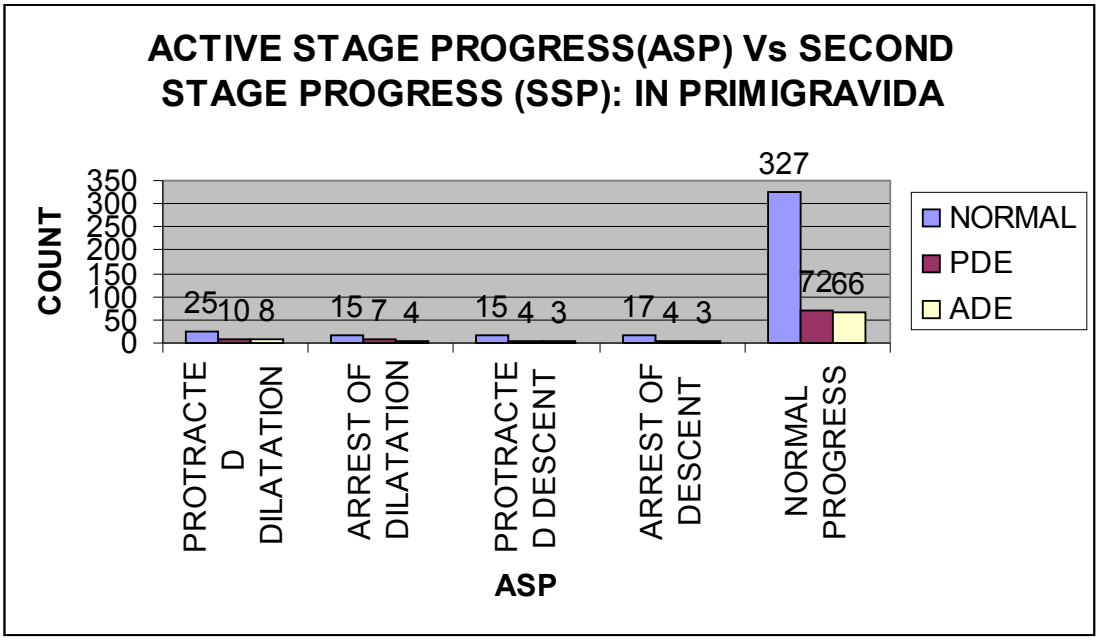
Table - 14

IN MULTIPARA,

SCORE	MODE OF DELIVERY		
	SVD	IVD	CD
< 3	133(68.9%)	17(8.8%)	43(22.3%)
≥ 3	220(96.9%)	3(1.3%)	4(1.8%)

Using chi-square test,p=0.000

Favorable score (**≥** 3) resulted in higher number of vaginal deliveries



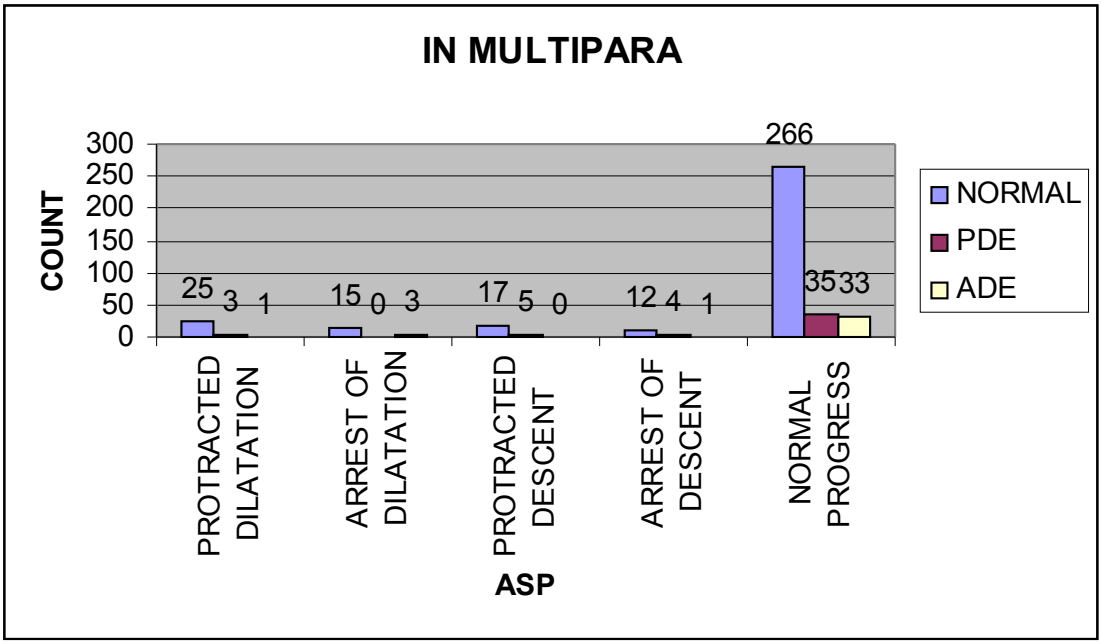


Table - 15

ACTIVE STAGE PROGRESS (ASP) Vs SECOND STAGE PROGRESS(SSP):

IN PRIMIGRAVIDA

ASP	SECOND STAGE PROGRESS		
	NORMAL	PDE	ADE
PROTRACTED DILATATION	25(6.3%)	10(10.3%)	8(9.5%)
ARREST OF DILATATION	15(3.8%)	7(7.2%)	4(4.8%)
PROTRACTED DESCENT	15(3.8%)	4(4.1%)	3(3.6%)
ARREST OF DESCENT	17(4.3%)	4(4.1%)	3(3.6%)
NORMAL PROGRESS	327(82%)	72(74.2%)	66(78.6%)

Using chi-square test,p=0.742

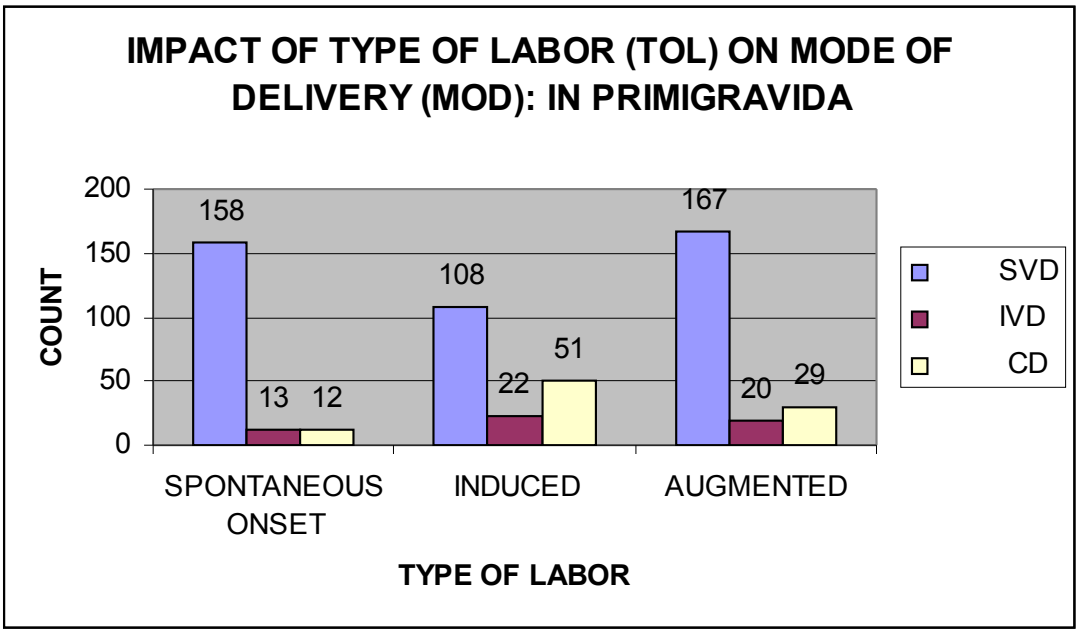
Table - 16

IN MULTIPARA,

ASP	SECOND STAGE PROGRESS		
	NORMAL	PDE	ADE
PROTRACTED DILATATION	25(7.5%)	3(6.4%)	1(2.6%)
ARREST OF DILATATION	15(4.5%)	0	3(7.9%)
PROTRACTED DESCENT	17(5.1%)	5(10.6%)	0
ARREST OF DESCENT	12(3.6%)	4(8.5%)	1(2.6%)
NORMAL PROGRESS	266(79.4%)	35(74.5%)	33(86.8%)

Using chi-square test,p=0.147

No significance found on SSP when compared with ASP.


IMPACT OF TYPE OF LABOR (TOL) ON MODE OF DELIVERY (MOD): IN PRIMIGRAVIDA
COUNT
200
150
100
50
0
158
13
12
108
22
51
167
20
29
SVD
IVD
CD
SPONTANEOUS ONSET
INDUCED
AUGMENTED
TYPE OF LABOR

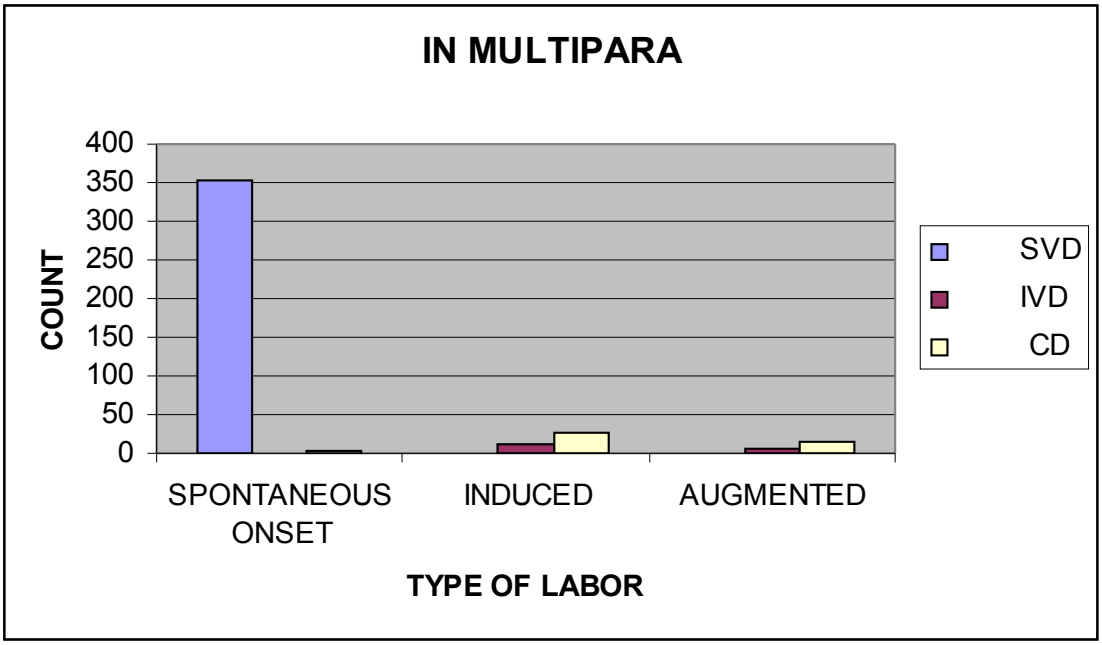

IN MULTIPARA
COUNT
400
350
300
250
200
150
100
50
0
SVD
IVD
CD
SPONTANEOUS ONSET
INDUCED
AUGMENTED
TYPE OF LABOR

Table - 17

IMPACT OF TYPE OF LABOR(TOL) ON MODE OF DELIVERY(MOD):

IN PRIMIGRAVIDA

TYPE OF LABOR	MODE OF DELIVERY		
	SVD	IVD	CD
SPONTANEOUS ONSET	158(86.3%)	13(7.1%)	12(6.6%)
INDUCED	108(59.7%)	22(12.2%)	51(28.2%)
AUGMENTED	167(77.3%)	20(9.3%)	29(13.4%)

Using chi-square test,p=0.000

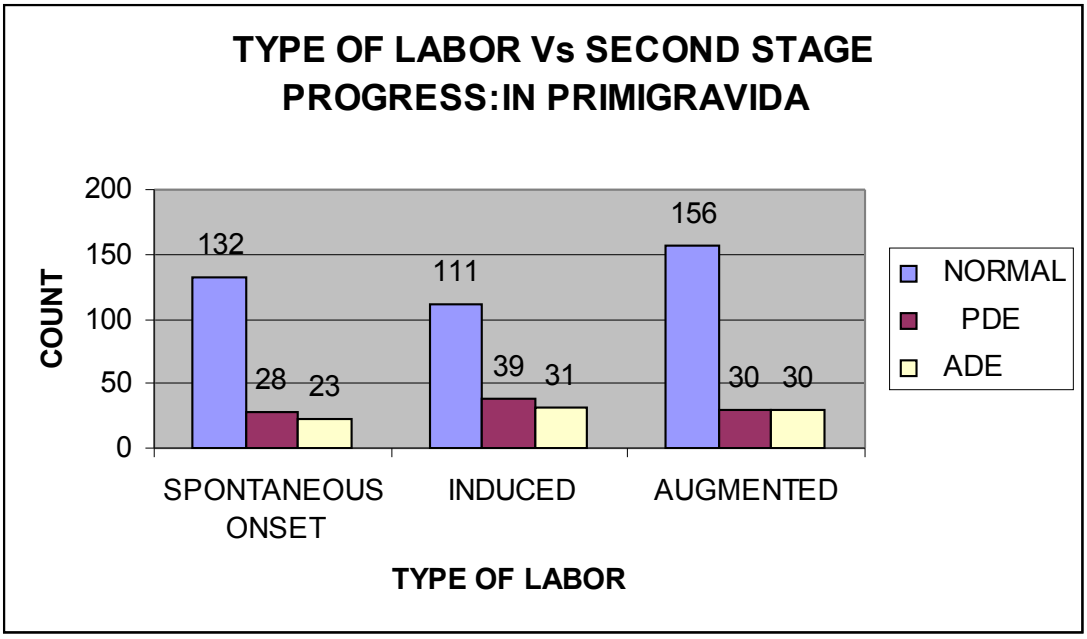
Table 18

IN MULTIPARA,

TYPE OF LABOR	MODE OF DELIVERY		
	SVD	IVD	CD
SPONTANEOUS ONSET	353(98.6%)	1(0.3%)	4(1.1%)
INDUCED	0	12(30.8%)	27(69.2%)
AUGMENTED	0	7(30.4%)	16(69.6%)

Using chi-square test,p=0.000

Significant association found between TOL and MOD.


TYPE OF LABOR Vs SECOND STAGE PROGRESS:IN PRIMIGRAVIDA
COUNT
200
150
100
50
0
132
28
23
111
39
31
156
30
30
SPONTANEOUS ONSET
INDUCED
AUGMENTED
TYPE OF LABOR
NORMAL
PDE
ADE

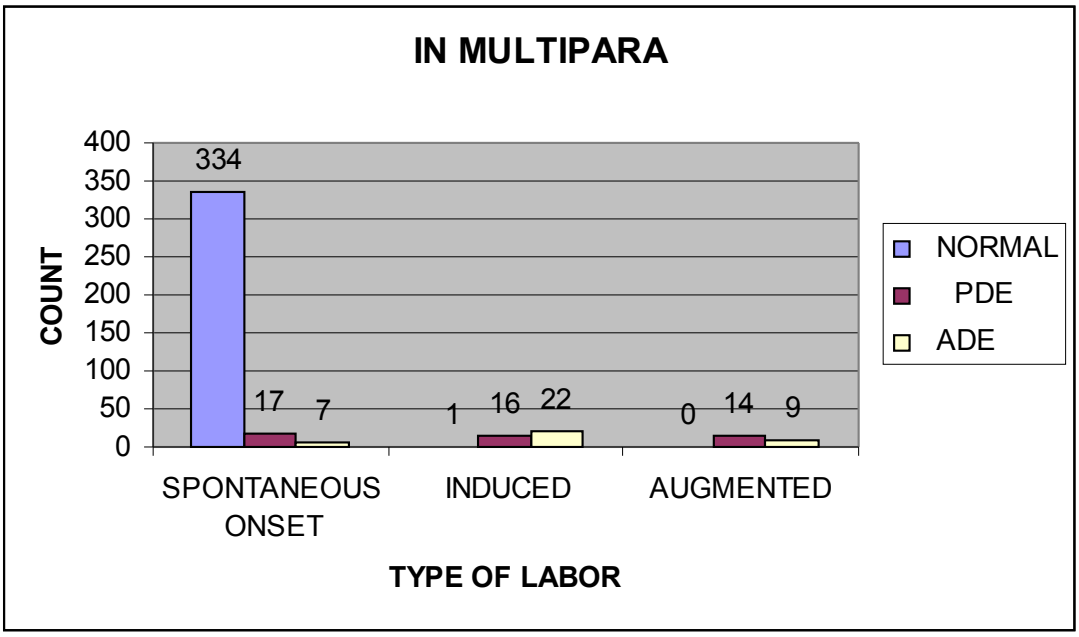

IN MULTIPARA
COUNT
400
350
300
250
200
150
100
50
0
334
17
7
1
16
22
0
14
9
SPONTANEOUS ONSET
INDUCED
AUGMENTED
TYPE OF LABOR
NORMAL
PDE
ADE

Table - 19

TYPE OF LABOR Vs SECOND STAGE PROGRESS:

IN PRIMIGRAVIDA,

TYPE OF LABOR	SECOND STAGE PROGRESS		
	NORMAL	PDE	ADE
SPONTANEOUS ONSET	132(72.1%)	28(15.3%)	23(12.6%)
INDUCED	111(61.3%)	39(21.5%)	31(17.1%)
AUGMENTED	156(72.2%)	30(13.9%)	30(13.9%)

Using chi-square test,p=0.121

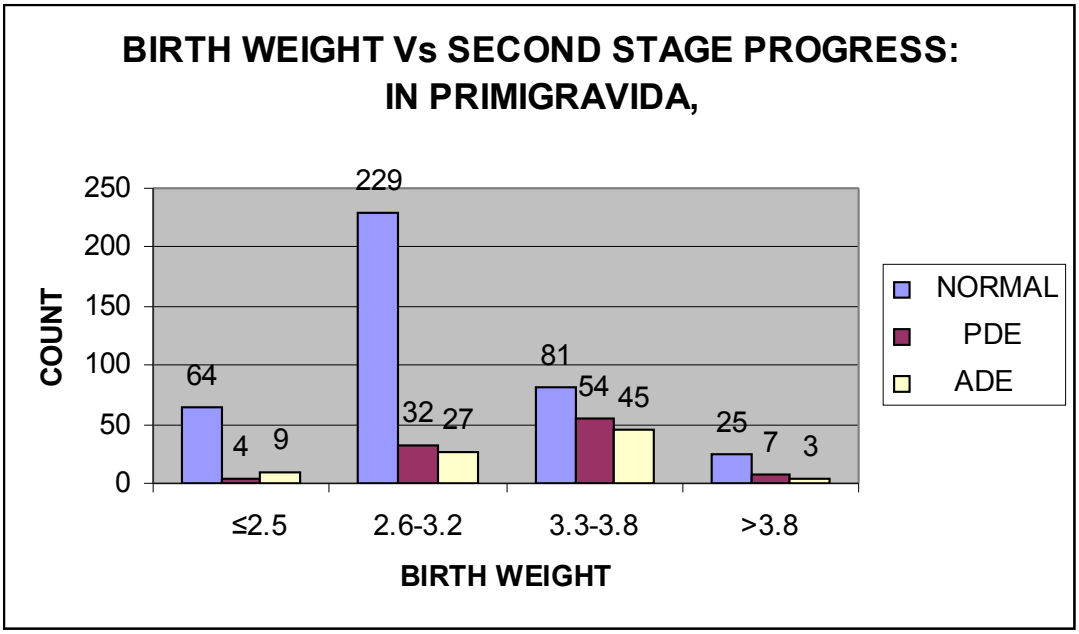
Table - 20

IN MULTIPARA,

TYPE OF LABOR	SECOND STAGE PROGRESS		
	NORMAL	PDE	ADE
SPONTANEOUS ONSET	334(93.3%)	17(4.7%)	7(2%)
INDUCED	1(2.6%)	16(41%)	22(56.4%)
AUGMENTED	0	14(60.9%)	9(39.1%)

Using chi-square test,p=0.000

Significant correlation noted between TOL and SSP only in multipara.


BIRTH WEIGHT Vs SECOND STAGE PROGRESS:
IN PRIMIGRAVIDA,
COUNT
250
200
150
100
50
0
64
4
9
229
32
27
81
54
45
25
7
3
≤2.5
2.6-3.2
3.3-3.8
>3.8
BIRTH WEIGHT
NORMAL
PDE
ADE

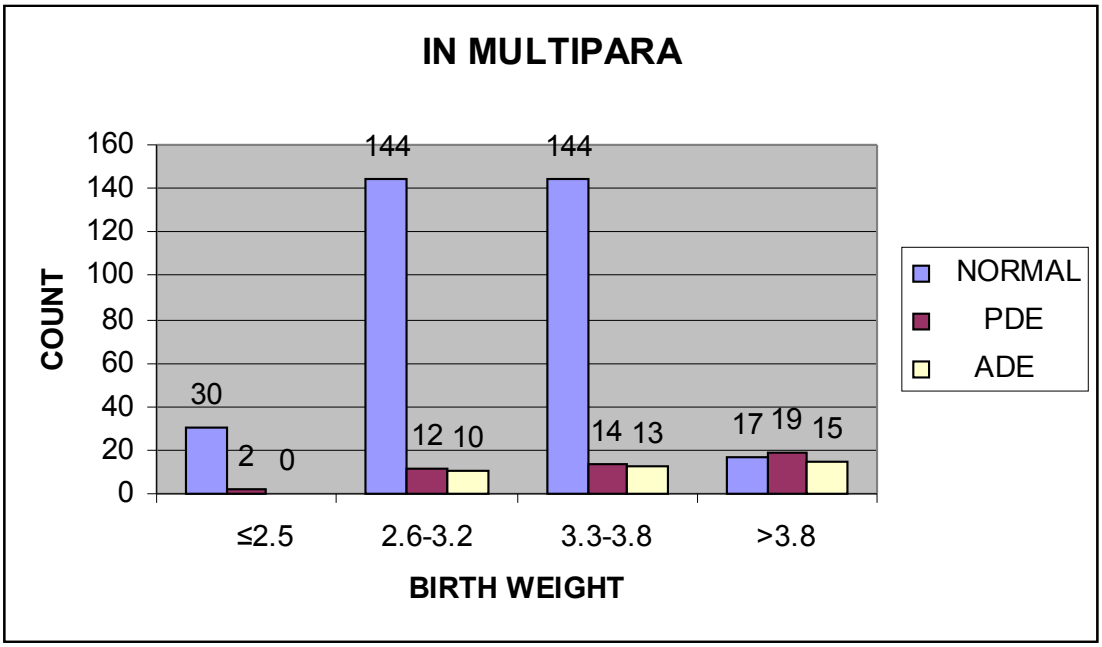

IN MULTIPARA
COUNT
160
140
120
100
80
60
40
20
0
30
2
0
144
12
10
144
14
13
17
19
15
≤2.5
2.6-3.2
3.3-3.8
>3.8
BIRTH WEIGHT
NORMAL
PDE
ADE

Table - 21

BIRTH WEIGHT Vs SECOND STAGE PROGRESS:

IN PRIMIGRAVIDA,

BIRTH WEIGHT (in kg)	SECOND STAGE PROGRESS		
	NORMAL	PDE	ADE
≤ 2.5	64(83.1%)	4(5.2%)	9(11.7%)
2.6-3.2	229(79.5%)	32(11.1%)	27(9.4%)
3.3-3.8	81(45%)	54(30%)	45(25%)
>3.8	25(71.4%)	7(20%)	3(8.6%)

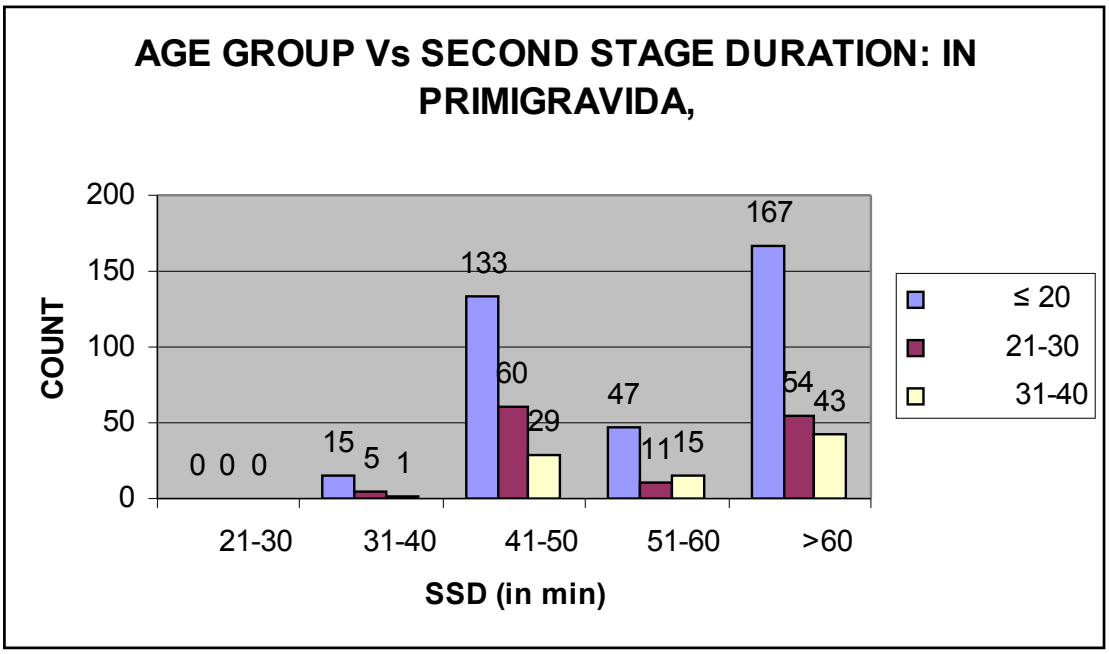
Using chi-square test,p=0.000

Table - 22

IN MULTIPARA,

BIRTH WEIGHT (in kg)	SECOND STAGE PROGRESS		
	NORMAL	PDE	ADE
≤ 2.5	30(93.8%)	2(6.2%)	0
2.6-3.2	144(86.8%)	12(7.2%)	10(6%)
3.3-3.8	144(84.2%)	14(8.2%)	13(7.6%)
> 3.8	17(33.3%)	19(37.3%)	15(29.4%)

Using chi-square test,p=0.000


AGE GROUP Vs SECOND STAGE DURATION: IN PRIMIGRAVIDA,
COUNT
200
150
100
50
0
0 0 0
15 5 1
133 60 29
47 11 15
167 54 43
21-30
31-40
41-50
51-60
>60
SSD (in min)
≤ 20
21-30
31-40

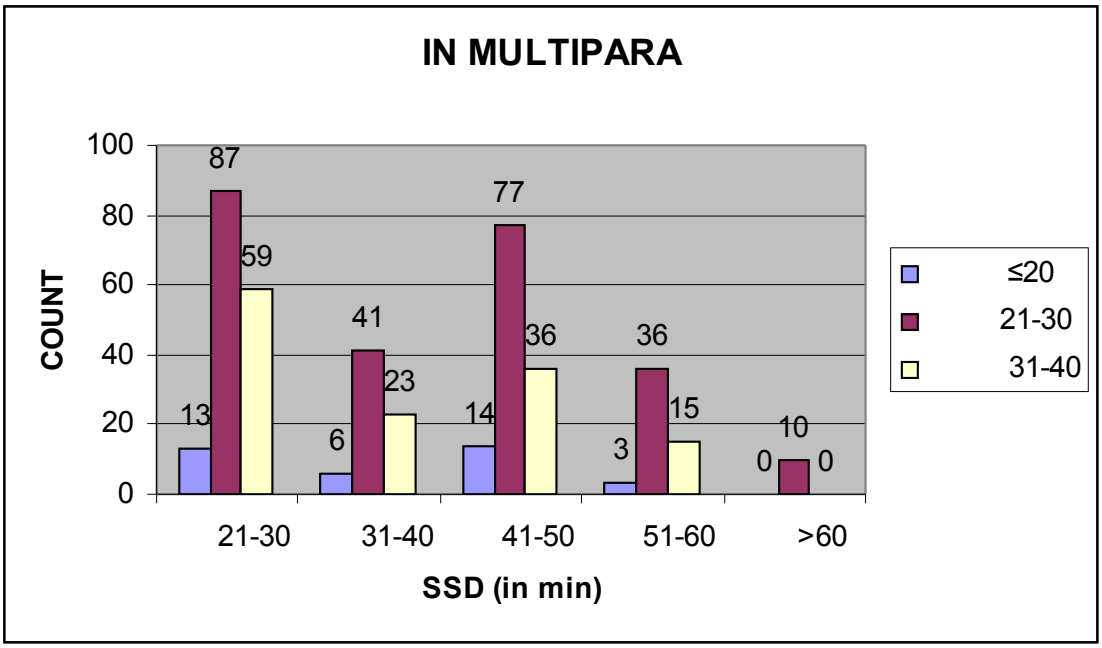

IN MULTIPARA
COUNT
100
80
60
40
20
0
13 87 59
6 41 23
14 77 36
3 36 15
0 10 0
21-30
31-40
41-50
51-60
>60
SSD (in min)
≤20
21-30
31-40

Table - 23

AGE GROUP Vs SECOND STAGE DURATION: PRIMIGRAVIDA,

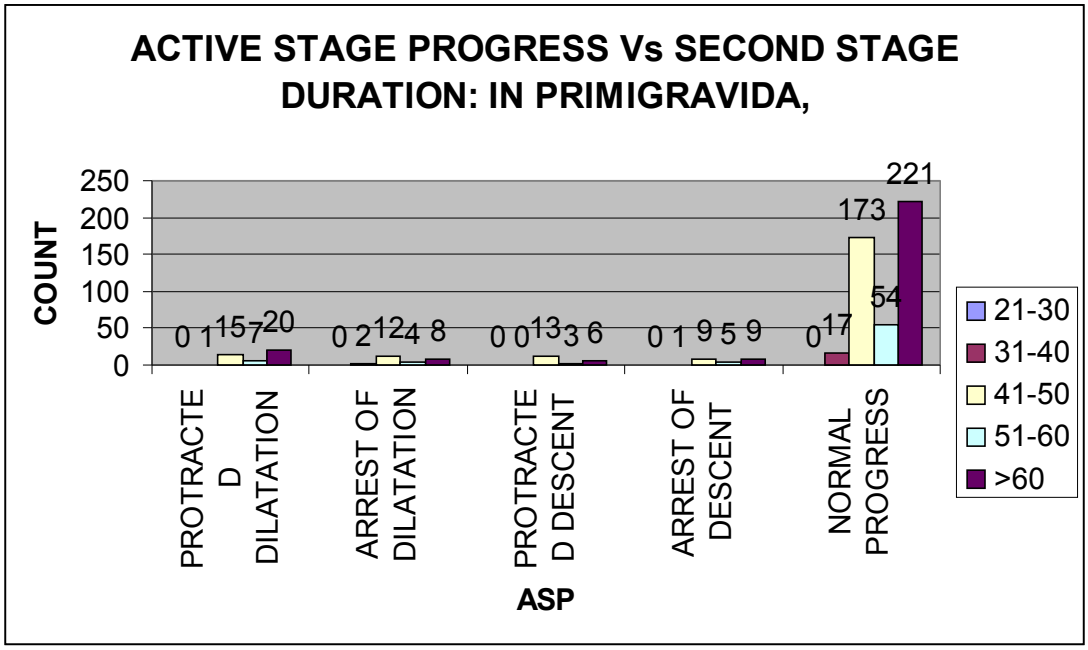
SSD(in min)	AGE GROUP(in yrs)		
	≤ 20	**21-30**	**31-40**
21-30	0	0	0
31-40	15(71.4%)	5(23.8%)	1(4.8%)
41-50	133(59.9%)	60(27%)	29(13.1%)
51-60	47(64.4%)	11(15.1%)	15(24.5%)
>60	167(63.3%)	54(20.5%)	43(16.2%)

Using chi-square test,p=0.193

Table - 24

IN MULTIPARA,

SSD(in min)	AGE GROUP(in yrs)		
	≤ 20	**21-30**	**31-40**
21-30	13(8.2%)	87(54.7%)	59(37.1%)
31-40	6(8.6%)	41(58.6%)	23(32.9%)
41-50	14(11%)	77(60.6%)	36(28.3%)
51-60	3(5.6%)	36(66.7%)	15(27.8%)
>60	0	10(100%)	0


ACTIVE STAGE PROGRESS Vs SECOND STAGE DURATION: IN PRIMIGRAVIDA,
COUNT
250
200
150
100
50
0
0 1 15 7 20
0 2 12 4 8
0 0 13 3 6
0 1 9 5 9
0 17 173 54 221
PROTRACTED DILATATION
ARREST OF DILATATION
PROTRACTED DESCENT
ARREST OF DESCENT
NORMAL PROGRESS
ASP
21-30
31-40
41-50
51-60
>60

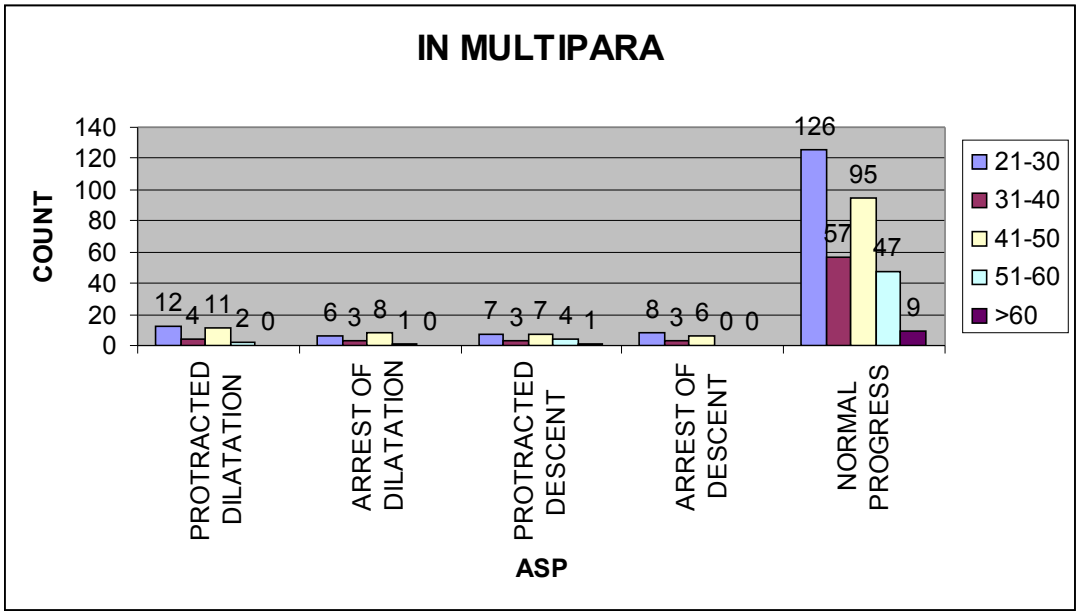

IN MULTIPARA
COUNT
140
120
100
80
60
40
20
0
12 4 11 2 0
6 3 8 1 0
7 3 7 4 1
8 3 6 0 0
126 57 95 47 9
PROTRACTED DILATATION
ARREST OF DILATATION
PROTRACTED DESCENT
ARREST OF DESCENT
NORMAL PROGRESS
ASP
21-30
31-40
41-50
51-60
>60

Table - 25

ACTIVE STAGE PROGRESS Vs SECOND STAGE DURATION:

IN PRIMIGRAVIDA,

ASP	SECOND STAGE DURATION(in min)				
	21-30	**31-40**	**41-50**	**51-60**	**>60**
PROTRACTED DILATATION	0	1(4.8%)	15(6.8%)	7(9.6%)	20(7.6%)
ARREST OF DILATATION	0	2(9.5%)	12(5.4%)	4(5.5%)	8(3%)
PROTRACTED DESCENT	0	0	13(5.9%)	3(4.1%)	6(2.3%)
ARREST OF DESCENT	0	1(4.8%)	9(4.1%)	5(6.9%)	9(3.4%)
NORMAL PROGRESS	0	17(80.9%)	173(77.8%)	54(73.9%)	221(83.7%)

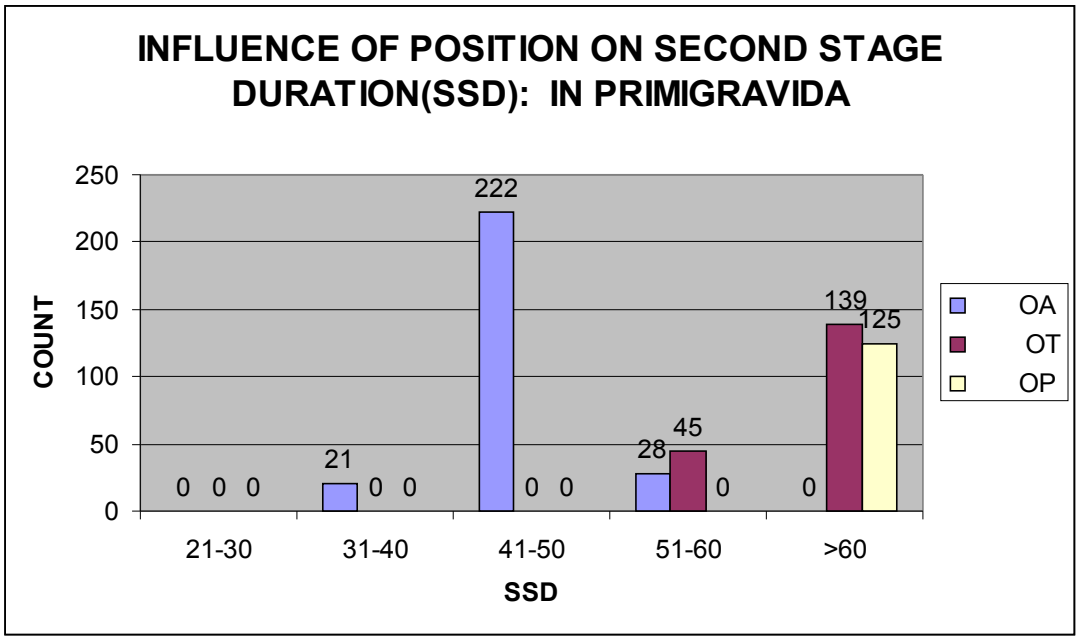
Using chi-square test ,p=0.504

Table - 26

IN MULTIPARA,

ASP	SECOND STAGE DURATION(in min)				
	21-30	**31-40**	**41-50**	**51-60**	**>60**
PROTRACTED DILATATION	12(7.5%)	4(5.7%)	11(8.7%)	2(3.7%)	0
ARREST OF DILATATION	6(3.8%)	3(4.3%)	8(6.3%)	1(1.9%)	0
PROTRACTED DESCENT	7(4.4%)	3(4.3%)	7(5.5%)	4(7.4%)	1(10%)
ARREST OF DESCENT	8(5%)	3(4.3%)	6(4.7%)	0	0
NORMAL PROGRESS	126(79.2%)	57(81.4%	95(74.8%)	47(87%)	9(90%)

		)			


INFLUENCE OF POSITION ON SECOND STAGE DURATION(SSD): IN PRIMIGRAVIDA
COUNT
250
200
150
100
50
0
0 0 0
21
0 0
222
0 0
28
45
0
0
139
125
21-30
31-40
41-50
51-60
>60
SSD
OA
OT
OP

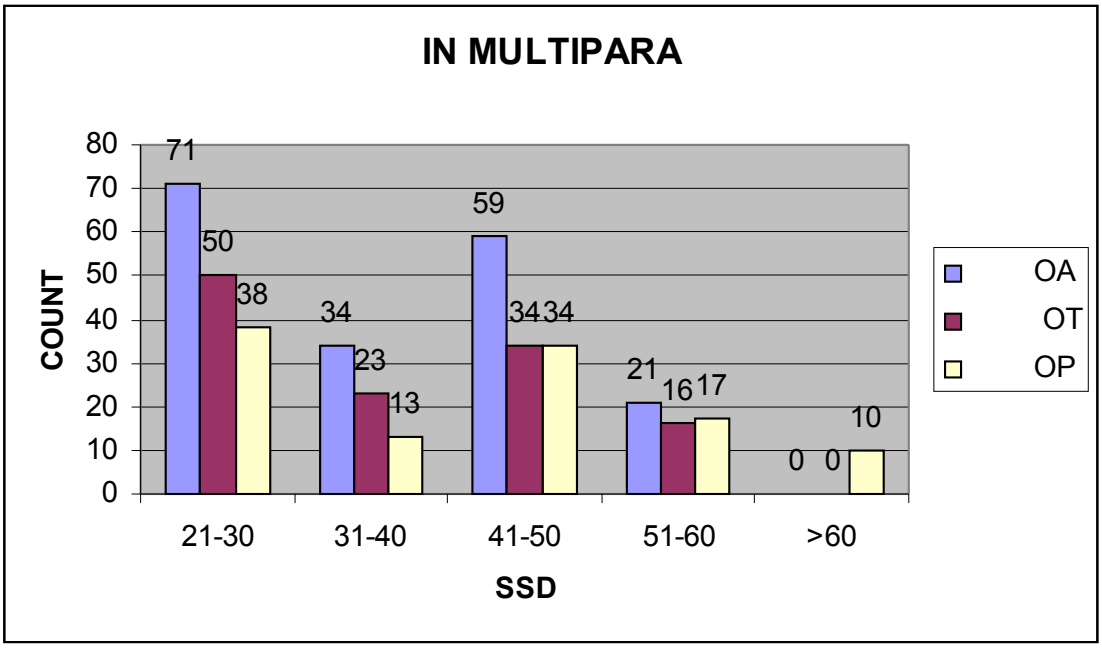

IN MULTIPARA
COUNT
80
70
60
50
40
30
20
10
0
71
50
38
34
23
13
59
34
34
21
16
17
0 0
10
21-30
31-40
41-50
51-60
>60
SSD
OA
OT
OP

Table - 27

INFLUENCE OF POSITION ON SECOND STAGE DURATION(SSD):

IN PRIMIGRAVIDA,

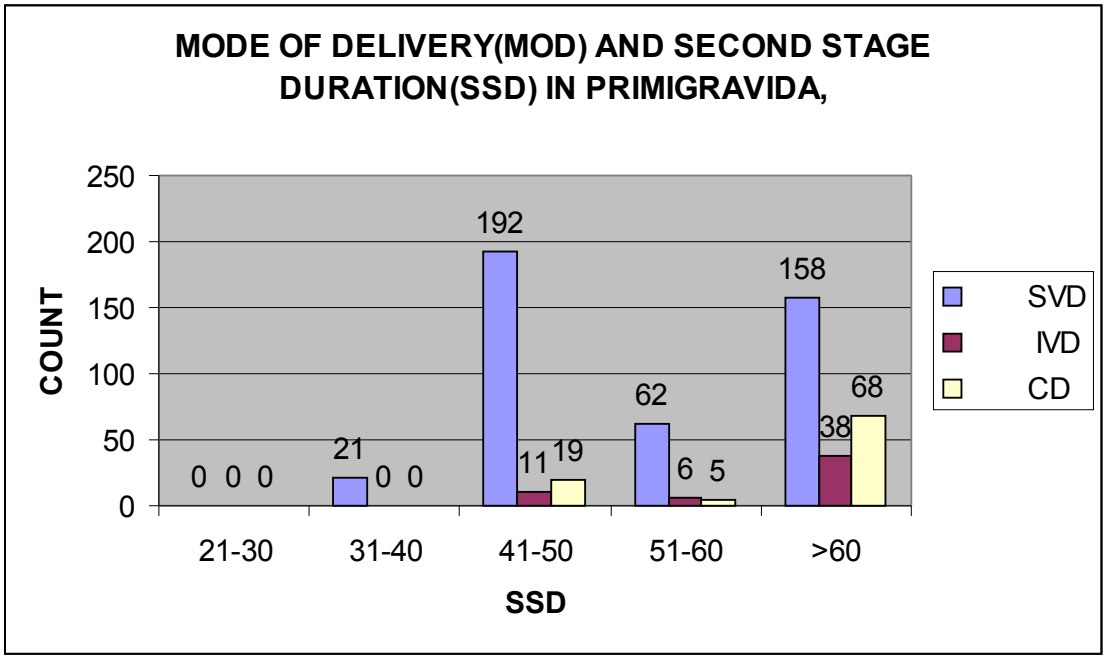
SSD (in min)	POSITION		
	OA	OT	OP
21-30	0	0	0
31-40	21(100%)	0	0
41-50	222(100%)	0	0
51-60	28(38.4%)	45(61.6%)	0
>60	0	139(52.7%)	125(47.3%)

Using chi-square test,p=0.000

Table - 28

IN MULTIPARA

SSD (in min)	POSITION		
	OA	OT	OP
21-30	71(44.7%)	50(31.4%)	38(23.9%)
31-40	34(48.6%)	23(32.9%)	13(18.6%)
41-50	59(46.5%)	34(26.8%)	34(26.8%)
51-60	21(38.9%)	16(29.6%)	17(31.5%)
>60	0	0	10(100%)


MODE OF DELIVERY(MOD) AND SECOND STAGE DURATION(SSD) IN PRIMIGRAVIDA,
COUNT
250
200
150
100
50
0
0 0 0
21
0 0
192
11 19
62
6 5
158
38
68
21-30
31-40
41-50
51-60
>60
SSD
SVD
IVD
CD

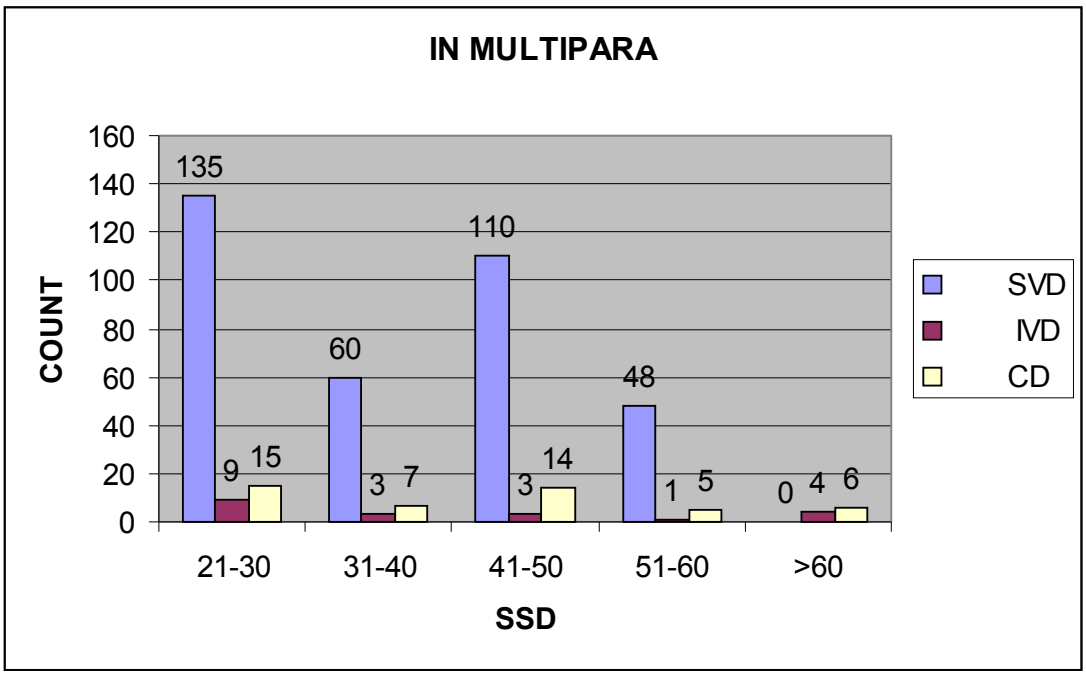

IN MULTIPARA
COUNT
160
140
120
100
80
60
40
20
0
135
9 15
60
3 7
110
3 14
48
1 5
0 4 6
21-30
31-40
41-50
51-60
>60
SSD
SVD
IVD
CD

Table - 29

MODE OF DELIVERY(MOD) AND SECOND STAGE DURATION(SSD)

IN PRIMIGRAVIDA,

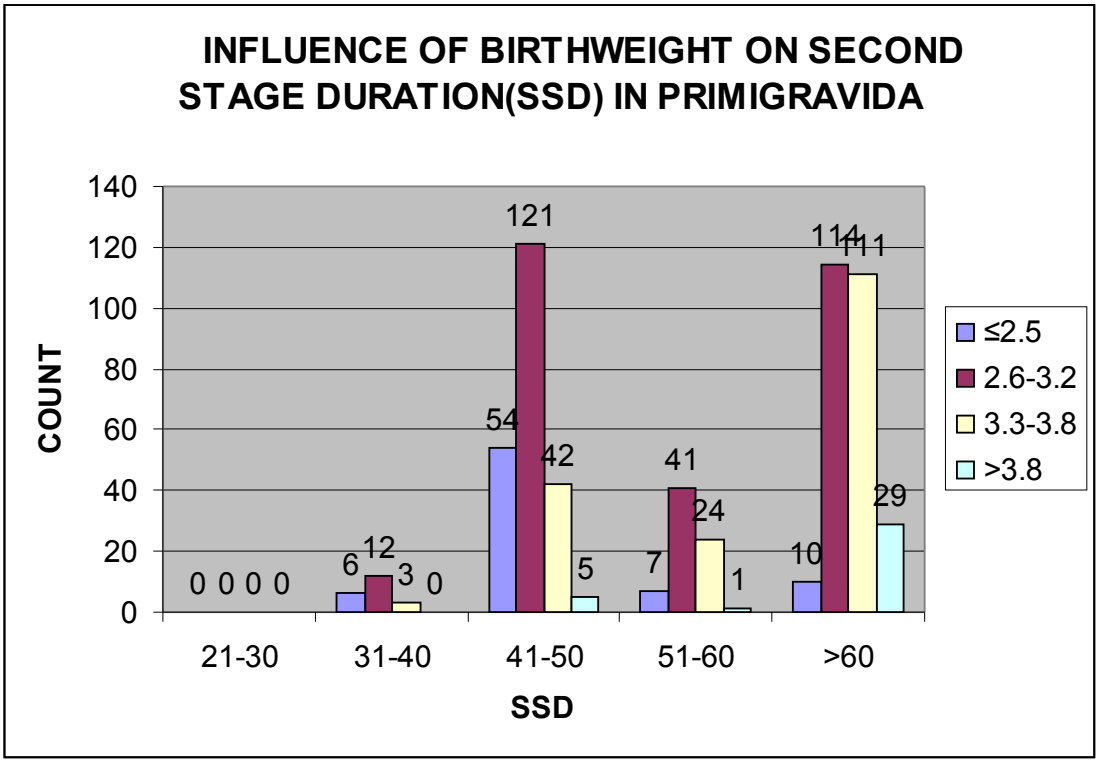
SSD (in min)	MODE OF DELIVERY		
	SVD	IVD	CD
21-30	0	0	0
31-40	21(100%)	0	0
41-50	192(86.5%)	11(5%)	19(8.5%)
51-60	62(84.9%)	6(8.2%)	5(6.9%)
>60	158(59.9%)	38(14.4%)	68(25.7%)

Using chi-square test,p=0.000

Table - 30

IN MULTIPARA,

SSD (in min)	MODE OF DELIVERY		
	SVD	IVD	CD
21-30	135(84.9%)	9(5.7%)	15(9.4%)
31-40	60(85.7%)	3(4.3%)	7(10%)
41-50	110(86.6%)	3(2.4%)	14(11%)
51-60	48(88.9%)	1(1.9%)	5(9.3%)
>60	0	4(40%)	6(60%)


INFLUENCE OF BIRTHWEIGHT ON SECOND STAGE DURATION(SSD) IN PRIMIGRAVIDA
COUNT
SSD
21-30
31-40
41-50
51-60
>60
0 0 0 0
6 12 3 0
54 121 42 5
7 41 24 1
10 114 111 29
≤2.5
2.6-3.2
3.3-3.8
>3.8

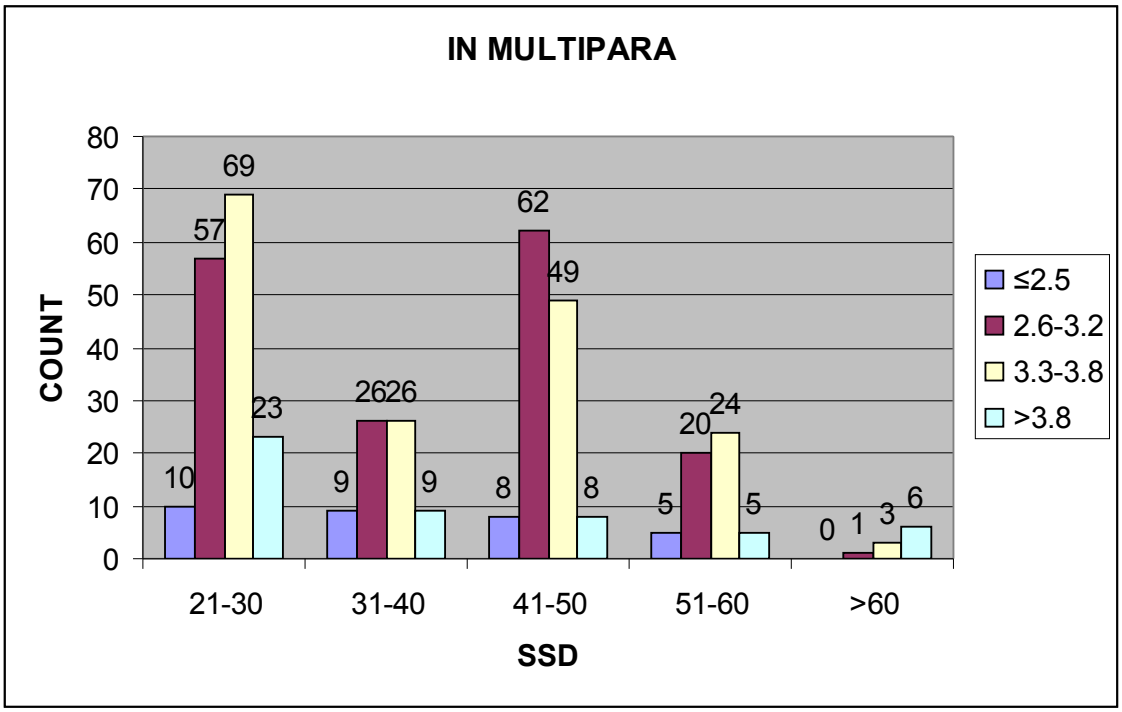

IN MULTIPARA
COUNT
SSD
21-30
31-40
41-50
51-60
>60
10 57 69 23
9 26 26 9
8 62 49 8
5 20 24 5
0 1 3 6
≤2.5
2.6-3.2
3.3-3.8
>3.8

Table - 31

INFLUENCE OF BIRTHWEIGHT ON SECOND STAGE DURATION(SSD)

IN PRIMIGRAVIDA,

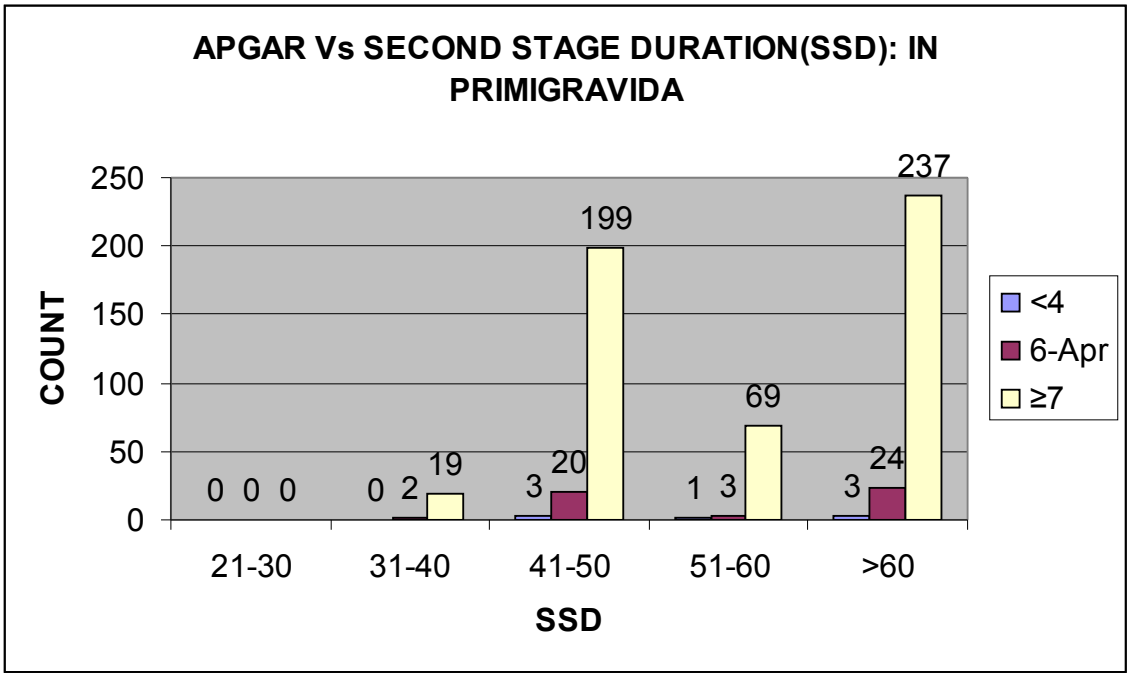
SSD (in min)	BIRTHWEIGHT			
	≤ 2.5	**2.6-3.2**	**3.3-3.8**	**>3.8**
21-30	0	0	0	0
31-40	6(28.6%)	12(57.1%)	3(14.3%)	0
41-50	54(24.3%)	121(54.5%)	42(18.9%)	5(2.3%)
51-60	7(9.6%)	41(56.2%)	24(32.9%)	1(1.3%)
>60	10(3.8%)	114(43.2%)	111(42%)	29(11%)

Using chi-square test,p=0.000

Table - 32

IN MULTIPARA,

SSD (in min)	BIRTHWEIGHT			
	≤ 2.5	**2.6-3.2**	**3.3-3.8**	**> 3.8**
21-30	10(31.3%)	57(34.3%)	69(40.4%)	23(45.1%)
31-40	9(28.1%)	26(15.7%)	26(15.2%)	9(17.6%)
41-50	8(25%)	62(37.3%)	49(28.7%)	8(15.7%)
51-60	5(15.6%)	20(12.1%)	24(14%)	5(9.8%)
>60	0	1(0.6%)	3(1.7%)	6(11.8%)


APGAR Vs SECOND STAGE DURATION(SSD): IN PRIMIGRAVIDA
COUNT
250
200
150
100
50
0
0 0 0
0 2 19
3 20 199
1 3 69
3 24 237
21-30
31-40
41-50
51-60
>60
SSD
<4
6-Apr
≥7

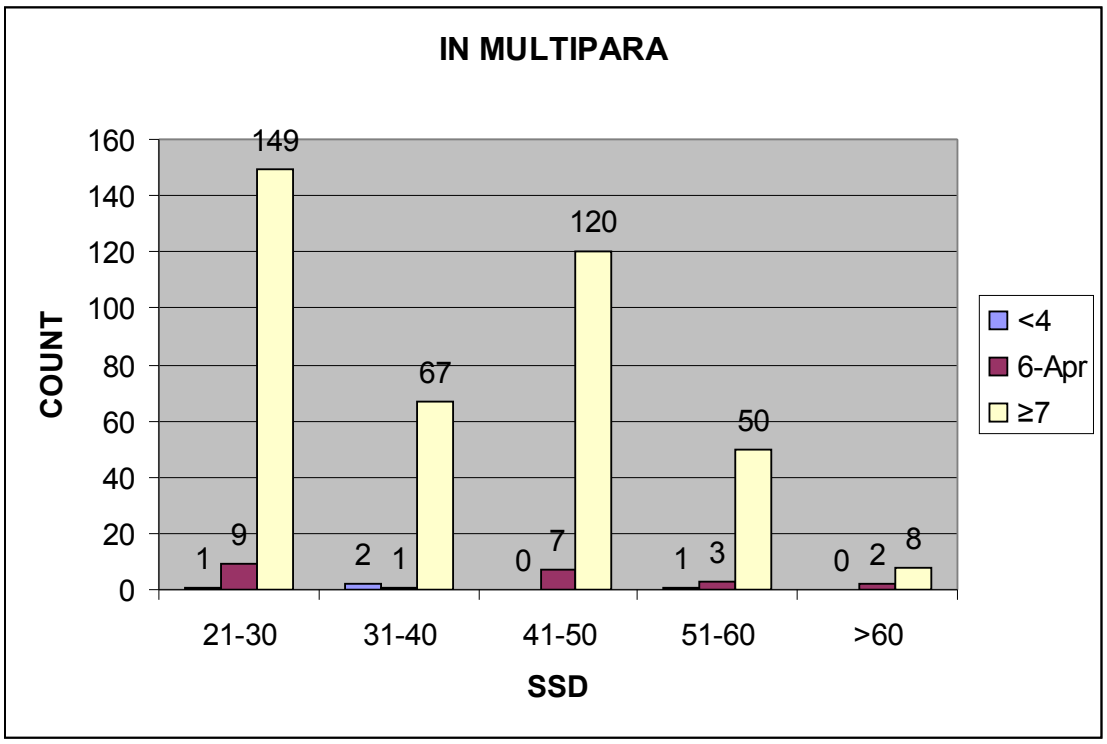

IN MULTIPARA
COUNT
160
140
120
100
80
60
40
20
0
1 9 149
2 1 67
0 7 120
1 3 50
0 2 8
21-30
31-40
41-50
51-60
>60
SSD
<4
6-Apr
≥7

Table - 33

APGAR Vs SECOND STAGE DURATION(SSD):

IN PRIMIGRAVIDA,

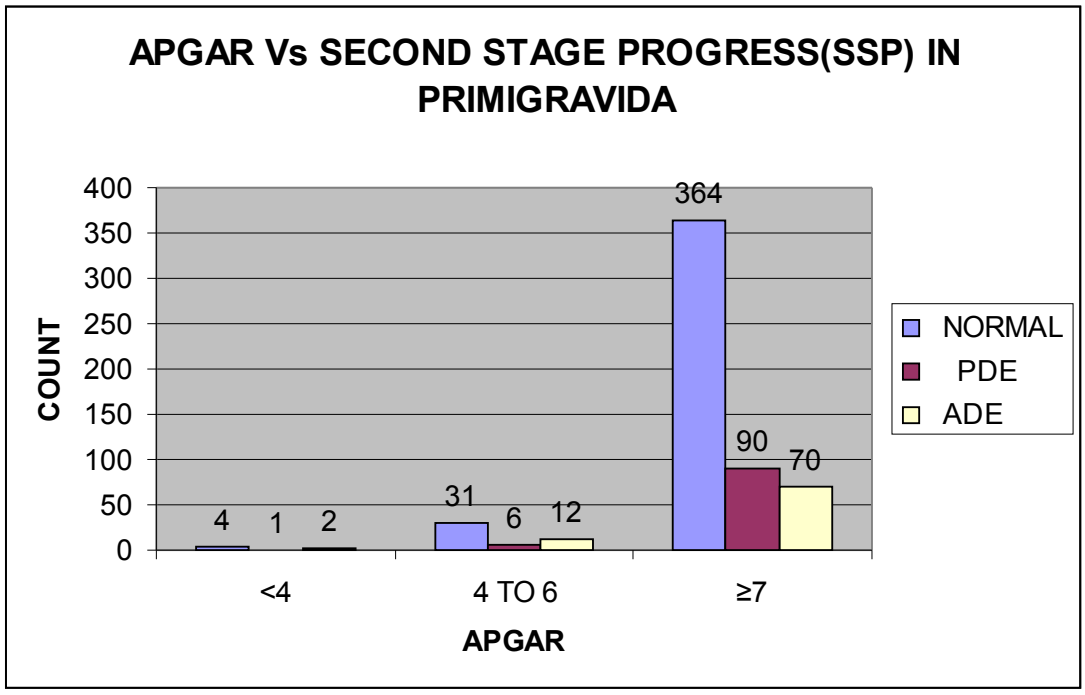
SSD (in min)	APGAR		
	< 4	4-6	≥ 7
21-30	0	0	0
31-40	0	2(9.5%)	19(90.5%)
41-50	3(1.4%)	20(9%)	199(89.6%)
51-60	1(1.4%)	3(4.1%)	69(94.5%)
>60	3(1.1%)	24(9.1%)	237(89.8%)

Using chi-square test,p=0.8885

Table - 34

IN MULTIPARA,

SSD (in min)	APGAR		
	< 4	4-6	≥ 7
21-30	1(0.6%)	9(5.7%)	149(93.7%)
31-40	2(2.9%)	1(1.4%)	67(95.7%)
41-50	0	7(5.5%)	120(94.5%)
51-60	1(1.9%)	3(5.6%)	50(92.6%)
>60	0	2(20%)	8(80%)


APGAR Vs SECOND STAGE PROGRESS(SSP) IN PRIMIGRAVIDA
COUNT
400
350
300
250
200
150
100
50
0
4
1
2
31
6
12
364
90
70
<4
4 TO 6
≥7
APGAR
NORMAL
PDE
ADE

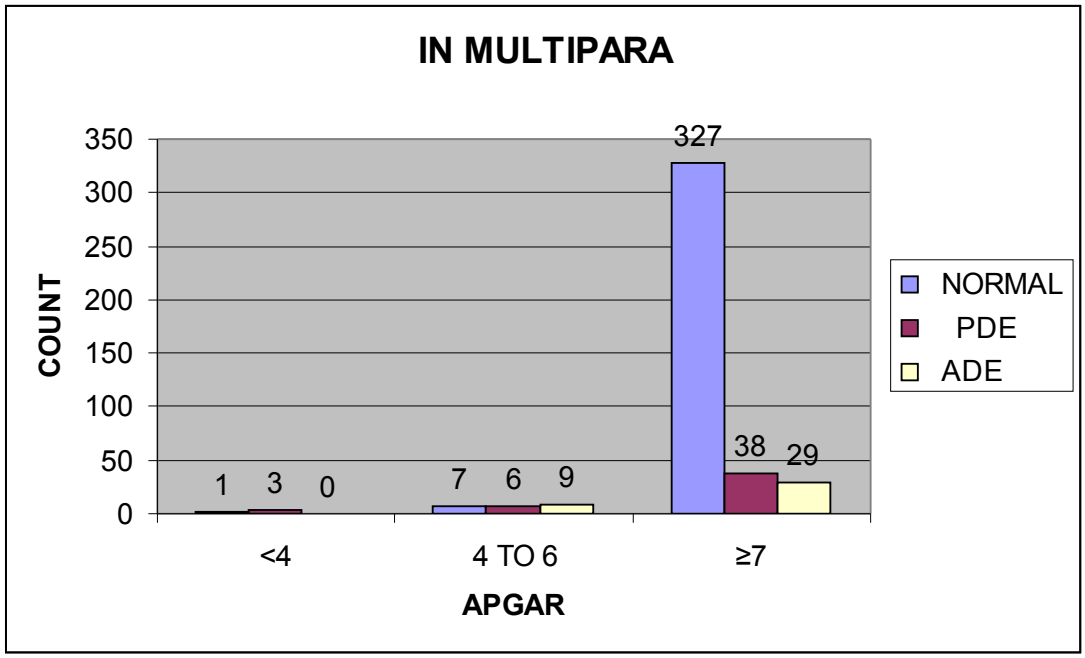

IN MULTIPARA
COUNT
350
300
250
200
150
100
50
0
1
3
0
7
6
9
327
38
29
<4
4 TO 6
≥7
APGAR
NORMAL
PDE
ADE

Table - 35

APGAR Vs SECOND STAGE PROGRESS(SSP)

IN PRIMIGRAVIDA,

APGAR	SECOND STAGE PROGRESS		
	NORMAL	PDE	ADE
<4	4(1%)	1(1%)	2(2.4%)
4-6	31(7.8%)	6(6.2%)	12(14.3%)
≥ 7	364(91.2%)	90(92.8%)	70(83.3%)

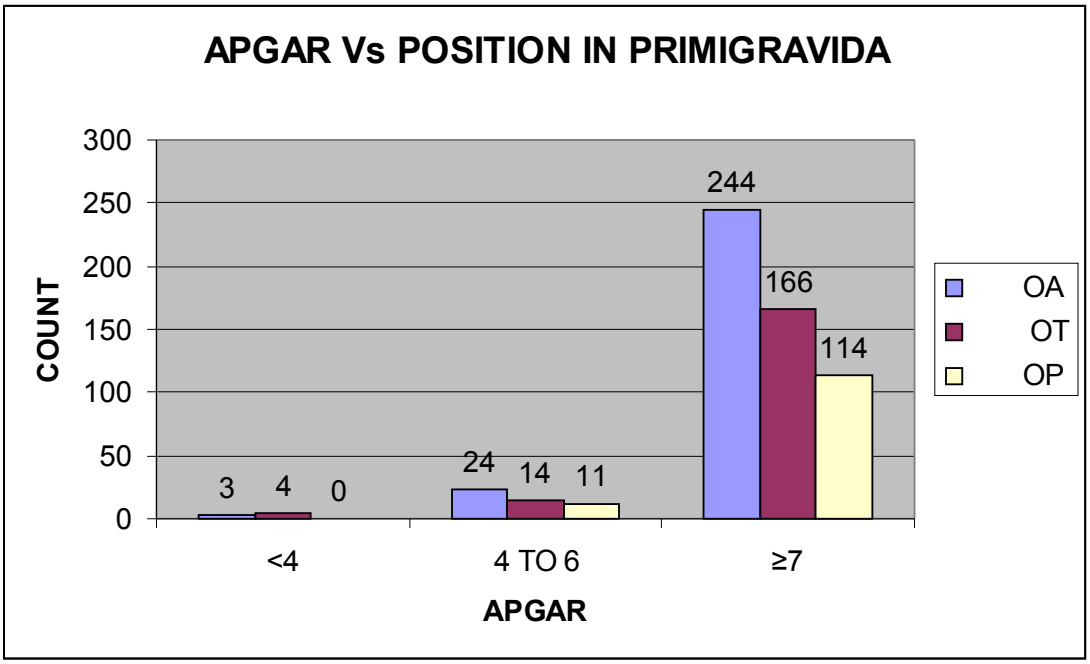
Using chi-square test,p=0.209

Table - 36

IN MULTIPARA,

APGAR	SECOND STAGE PROGRESS		
	NORMAL	PDE	ADE
<4	1(0.3%)	3(6.4%)	0
4-6	7(2.1%)	6(12.8%)	9(23.7%)
≥ 7	327(97.6%)	38(80.9%)	29(76.3%)

Using chi-square test,p=0.000


APGAR Vs POSITION IN PRIMIGRAVIDA
300
250
200
150
100
50
0
COUNT
3
4
0
24
14
11
244
166
114
<4
4 TO 6
≥7
APGAR
OA
OT
OP

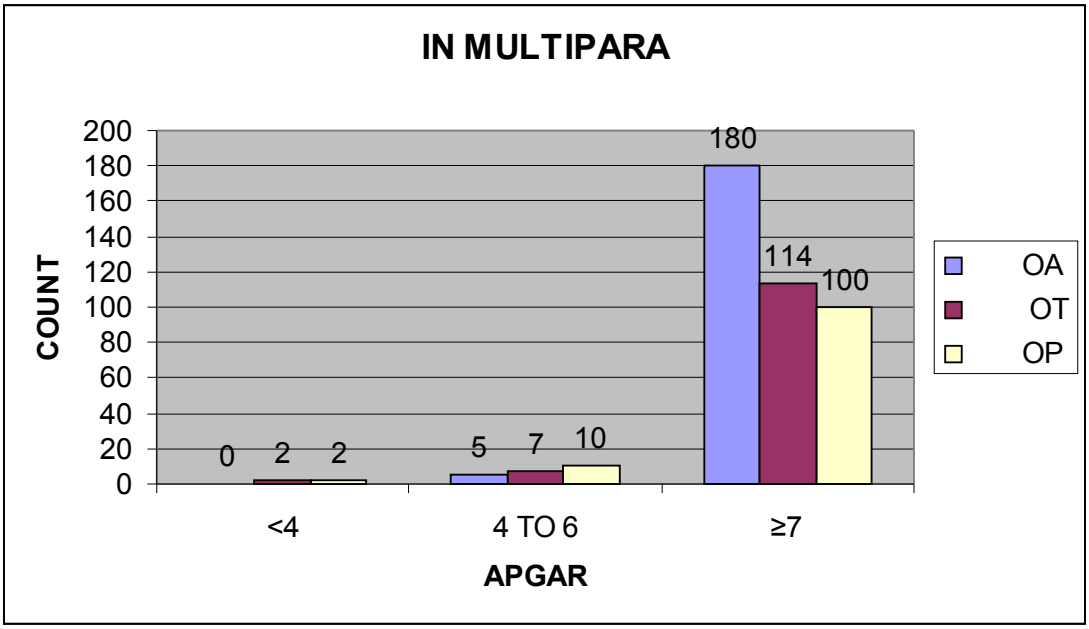

IN MULTIPARA
200
180
160
140
120
100
80
60
40
20
0
COUNT
0
2
2
5
7
10
180
114
100
<4
4 TO 6
≥7
APGAR
OA
OT
OP

Table - 37

APGAR Vs POSITION

IN PRIMIGRAVIDA,

APGAR	POSITION		
	OA	OT	OP
<4	3(1.1%)	4(2.2%)	0
4-6	24(8.9%)	14(7.6%)	11(8.8%)
≥ 7	244(90%)	166(90.2%)	114(91.2%)

Using chi-square test,p=0.526

Table - 38

IN MULTIPARA,

APGAR	POSITION		
	OA	OT	OP
<4	0	2(1.6%)	2(1.8%)
4-6	5(2.7%)	7(5.7%)	10(8.9%)
≥ 7	180(97.3%)	114(92.7%)	100(89.3%)

Using chi-square test,p=0.640

Discussion

DISCUSSION

The role of partogram in the first stage of labor was established more than 20 years ago. A second stage partogram is a logical extension of the first stage partogram and furthers its advantages.

Many factors influence progress in the second stage: the size and shape of pelvis, which may be related to the height of the mother, soft tissue resistance, maternal effort and degree of flexion, caput and moulding of the head. However, these factors may all be resolved into the end result of descent and rotation, which allows simplified assessment and the possibility of graphic representation.

The validity of this procedure is supported by the positive correlation found between the scores for position and station and positive outcome i.e., short duration of the second stage and spontaneous vaginal delivery. This study also shows that a scoring system based on descent and rotation expressed graphically can chart the progress in the second stage.

A scoring system based on position and station appears to differentiate between normal and abnormal labors and therefore satisfies the criteria under which the first stage partogram was introduced.

Discussion on TABLE-2, 3, 4, 5, 6, 7, 8:

Analyzing the factors influenced by the parity in this study, significant correlation were noted between parity and TOL (p=0.000) , SSD(student 't' test : 0.000), birth weight (student 't' test : 0.000), SSP (p=0.001), score (p=0.001) and MOD (p=0.001). No significant correlation found between parity and ASP (p=0.864) and position (p=0.170).

Discussion on TABLE-9:

In 1982, **Cardozo et al,** links –"predictive value of cervimetrc pattern in primigravida to the outcome of labor"

Cervimetric pattern	**Mode of delivery**	**Cardozo'82**	**Present study**
Normal	Vaginal delivery	98.4%	81%
Dysfunctional labor	Vaginal delivery	22.7%	39%
	Caesarean delivery	16.8%	23.9%

Comparison of this study and the present study revealed a higher incidence of dysfunctional labor in the present study. This could be due to the difference in study characteristics. Whereas **Cardozo et al.,** studied

only those primi with spontaneous onset of labor; the present study consists of all types of labor.

Discussion on TABLE-11, 12:

Sizer et al ’96 studied on occipito posterior position: associated factors and obstetric outcome in nulliparous. Similar results were showed in this study,

POSITION	IVD		CD	
	Sizer et al	This study	Sizer et al	This study
OA	24.4%	21.8%	13.7%	20.7%
OP	43.7%	43.6%	41.7%	62%

TABLE-13, 14:

In this study there occurs a significant relationship between score at full dilatation and MOD score < 3 predicts SVD of 52.5% and with score of ≥ 3 predicts SVD 86.7% in nullipara (p=0.000). In multipara, SVD with score <3 is 68.9% and with score ≥ 3 is 96.9% (p=0.000). Similar results were also reported in a study by **Sizer et al** ’96 in nullipara (p<0.001) and multipara (p=0.003).

TABLE-15,16:

This study did not reveal any quantifiable impact of the active stage on second stage of labor irrespective of parity.

Discussion on TABLE-17, 18:

The relationship between the type of labor and the mode of delivery is analyzed in this study. In nullipara, SVD in patients who had spontaneous onset of labor, induction and augmentation were 86.3%, 59.7% and 77.3% respectively (p=0.000). Increased operative intervention is seen in induced and augmented labor in nullipara. In multipara, all women who had spontaneous onset of labor had SVD (i.e., 100%).

TABLE-19:

In nullipara, there is no significant relation between TOL and SSP (p=0.121). 72.1% patients with spontaneous onset of labor and 72.2% of patients with augmented labor had normal SSP whereas in multipara, significant correlation was noted (p=0.000).

TABLE-21, 22:

In nullipara, there is no significant relation between TOL and SSP (p=0.121). 72.1% patients with spontaneous onset of labor and 72.2% of patients with augmented labor had normal SSP.

TABLE-23, 24, 31, 32:

O' Connell et al studied on factors associated with prolonged second stage of labor in nullipara and concludes that women with a short second stage of labor were significantly younger and had significantly smaller babies. Present study did not show ant significance between age group and SSD (p= 0.193). But significant relation occurs between birth weight and SSD by having proportionate relation (p=0.000).

TABLE-25, 26, 7, 31:

Piper Jm et al., studied on – "The second stage of labor: factors influencing duration." They showed a significant association between second stage duration and active stage progress (p=0.0001), parity (p=0.0001) and birth weight (p=0.0003). In this study significant association was between parity (p=0.0000) birth weight (p=0.0000). There is no significant association between ASP and SSD (p=0.504).

TABLE-27:

Logistic regression analysis to examine the determinants of prolonged second stage duration (≥ 3 hrs) showed that fetal malposition at full dilatation results in a higher risk of prolonged second stage of labor and increases maternal morbidity indicators **(Sencal J et al).** By defining SSD as prolonged if > 1 hr, this study also showed a higher risk for prolonged second stage with unfavorable position at full dilatation in primigravida.

In the present study,

POSITION	SSD > 1hr
OA	0
OT	52.7%
OP	47.3%

TABLE-29, 30:

Paterson et al., studied "The characteristics of second stage of labor in 25, 069 singleton pregnancies retrospectively". They showed a strong negative association between parity and operative intervention. They also showed that when maternal and fetal conditions were satisfactory, intervention should be based on the rate of progress of labor rather than the elapsed time since full cervical dilatation. This study also

revealed a similar negative association where the SSD>1hr, intervention were more irrespective of parity. In the present study,

SSD>1hr	MODE OF DELIVERY		
	SVD	IVD	CD
PRIMI n=264	59.9%	14.4%	25.7%
MULTI n=10	NIL	40%	60%

TABLE: 33, 30, 29:

A study by **Cheng YW et al** showed a prolonged second stage is associated with increased operative delivery rates but not with poor neonatal outcome. In this study on nullipara,

SSD	IVD	CD	APGAR <7
≤ 1hr	5.4%	7.6%	9.2%
> 1 hr	14.4%	25.7%	10.2%

This study also revealed an increased risk of operative delivery with prolonged second stage.

Discussion on TABLE-33, 29:

Moon Jm et al, studied perinatal outcome after a prolonged second stage of labor and concluded that this doesn't appear to impose an

increased hazard on possibility of operative delivery in nullipara. In this study, there is no significant association between APGAR and second stage duration (p=0.885).But there is a significant relationship between mode of delivery and second stage duration (p=0.000).

TABLE-35, 36:

No relation could be made out between APGAR and SSP. One neonatal death occurred in each parity with the APGAR <4 at 5 minutes (p=0.000).

TABLE-37:

Similar to **Sizer et al,** in primigravida, there was no significant difference in percentage of infants with low APGAR score at 5 minutes between those who delivered with OP/OA position (P=0.526) in this study also.

Summary

SUMMARY

The present study was carried out at **Institute of social obstetrics and Govt. Kasturba Gandhi Hospital, Chennai** from April 2007 to April 2008 to analyze the efficacy of second stage partogram in assessing obstetric outcome.

The study population was 1000 of which 580 were primigravida and 420 were multigravida.

All these 1000 women were monitored using WHO modified partograph and all these women had active stage labor within acceptable levels. The second stage partograph was started at the end of active stage partograph. The anticipated outcome of these 1000 women based on the second stage partograph was compared with the actual labor outcome.

In second stage partograph, a score ≥ 3 is considered favorable. Using the second stage partograph, it is noted that 24.7% of primi and 68.9% of multi had spontaneous vaginal delivery with a not very favorable score of <3 and this increased to 43.6% and 96.9% respectively when the score was ≥ 3 thereby demonstrating the favorable predictive value of second stage partograph.

In this study, SSD or SSP or position at second stage had no significant impact on APGAR at 5min.

Prolonged SSD (>60min) ended in cesarean delivery in 25.7% and 60% of primi and multi respectively.

Similarly the second stage partograph could also predict the labor outcome based on the position. OP position ended in 10.2% and 19% SVD. The duration also could be taken as a predictive factor of second stage partograph in OP position with figures 47.3% and 100% in primi and multi respectively.

Conclusion

CONCLUSION

This study enables the use of second stage partograph in predicting obstetric outcome by analysing the various parameters like position and station.

Patient with score <3 can be cautiously monitored and early intervention can be done to reduce the maternal risks of traumatic difficult deliveries and compromised fetal outcome.

Moreover graphic representation of second stage would be a continuum of care from the modified WHO partograph and would enable the medical and paramedical personnel to follow up the progress of labor.The ease of plotting and use of this tool would also enable the paramedical to acquire the skill of plotting the partograph with a short learning curve.

Overall, second stage partograph would be an effective tool for assessing further progress of labor in second stage in low resource setting with man power constraints.

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Proforma

PROFORMA

Name Age IP NO.

Parity LMP EDD

D.O.A: D.O.Delivery:

Obstetric History:

O/E: Height, Weight, Pallor, Temp, Pedal edema

PR, BP, CVS, RS, CNS.

Obstetric examination:

Per abdomen:

Per vaginal:

Monitoring of Labor:

Type of Labor:

Spontaneous onset:

Induced:

Augmented:

Modified WHO partograph--Active stage progress:

Normal:

Protracted dilatation(PDI):

Arrest of dilatation(ADI):

Protracted descent(PDE):

Arrest of descent(ADE):

Second stage monitoring (by second stage partograph):

Position:

Station:

Score(position&station):

Duration:

Progress: Normal.

Protracted descent.

Arrest of descent

MODE OF DELIVERY:

Spontaneous vaginal delivery:

Instrumental vaginal delivery:

Cesarean delivery:

BABY: Live

APGAR

Weight

Meconium aspiration

Birth asphyxia

NICU Admissions

Neonatal deaths

Abbreviations

ABBREVIATIONS

MOD	Mode of delivery
TOL	Type of Labour
SVD	Spontaneous vaginal delivery
IVD	Instrumental vaginal delivery
CD	Caesarean delivery
SSP	Second stage progress
SSD	Second stage duration
PDE	Protracted descent
ADE	Arrest of descent
PDI	Protracted dilatation
ADI	Arrest of dilatation
ASP	Active stage progress
OA	Occipito anterior
OT	Occipito transverse
OP	Occipito posterior

Master Chart